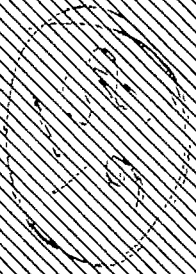


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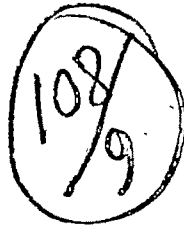
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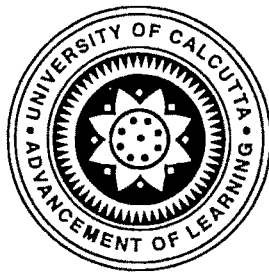
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EDITORIAL

This collection of essays offers a bouquet of anthropological research carried out in the University of Calcutta, the undergraduate departments affiliated to it, and two research institutes of the union government. Keeping the tradition of the department as background, the journal publishes articles from three sub disciplines of Physical anthropology, Social-cultural anthropology, and Prehistory and palaeoanthropology. For more than a decade, the department is conducting researches on the relationship of man and environment and its different dimensions. The emphasis is on the human diversities both biological and cultural as result of man's conscious, part conscious and hidden physical response as result of adapting the environment.

A Study on Variation and Sexual Dimorphism of Handwriting contributed by Kar, Roy Tafadar et al (article 1) traces upon a fixed number of handwriting characters among the Bengali population and shows the effect of biology of sex on a socially acquired character. Different socio-economic status may have a direct link in experiencing different problems during the menstrual cycle. Dasgupta and Ray suggest (article 2) that the socio-economic difference may not have statistically significant effect upon the menstrual health of the women but there exists the visible difference. Twin study has provided stimulus to the human biologists to think about the influence of environment (including social and cultural) upon the biological characters. However, Sarkar argues (article 3) that scope of this sort of studies is limited in case of certain small scale communities like Muklom of North-east India. For they believe that twin is unnatural and twin birth is a bad omen for the whole community; and therefore, they kill the twin after birth.

The local global bridging up through the process of globalization has far reaching effect on labour. Unlike the capital, goods and services, labour is not allowed to move freely transcending the national boundary. Cities are expected to take more active part in the process of development since they are the centres of globalised activities but failing miserably. As a result the number of unemployed workers is increasing in the cities. So to supplement the family income the children are engaged in work. Bagchi and Das argue (article 4) that good of the globalization is geographically conditioned and the children are becoming easy prey of the so called development. While globalization is a process of bringing resources – material and human – under control, Chatterjee and Das make an attempt (article 5) to understand how the Gujars of Himachal Pradesh cognise their space and time in order to continue self sustenance activities by exploiting the eco-zones. Another study on the cognitive aspect of environment has been contributed by Sengupta and Ghosh (articles 6). In this paper the authors present the Santal scheme of classifying land and water, which are principal components of their agricultural occupation. One of the important aspects of

indigenous knowledge of environment is how to overcome the uncertainty involved in the course of exploitation. Chakrabarti (article 7) in his contribution highlights that the concepts related to the deities and their worship vary due to different practices of the communities or segments of a particular community even though they are living in the same ecological condition. When the same territory is shared by more than one community, the study on identity becomes more relevant. While exploiting the resources through intercommunity cooperation and contradiction, each community also try to preserve their own cultural identity. Roy (article 8) presents his research on how language becomes a strong resource to launch political movement in order to maintain a separate identity. Bhattacharya in her study (article 9) on demography shows that among the different tribal groups of West Bengal the rate of women's work participation is directly proportionate to the literacy gap between the sexes.

Prehistoric archaeology is not just the description of prehistoric find; it is the description of man's effort to adapt the environment and his creativity. Sengupta presents her fieldwork in Susunia region of Bankura district and argues (article 10) that the processual archaeology helps to reconstruct and interpret the prehistoric men's adaptation of the environment. Chakrabarti (article 11) also deals with the prehistoric cultures of West Bengal. She points out the regions where the Palaeolithic culture of West Bengal is concentrated. Bhattacharya presents (article 12) a comprehensive account of the prehistoric cultures of West Bengal. He argues that the available evidences, a major part of which comes from his own fieldwork, conclusively suggest the cultural continuity in prehistoric West Bengal.

Gopalkrishna Chakrabarti

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A STUDY ON VARIATION AND SEXUAL DIMORPHISM OF HANDWRITING IN BENGALEE POLULATION

Atrayee Kar, Jayita Roy Tapadar, Diptendu Chatterjee, Sudesna Chanda, Jyoti Ratan Ghosh and Arup Ratan Bandyopadhyay

Abstract : The ability to infer the sex of the writer from cursive handwriting was examined under a range of conditions. The study was conducted on 87 males and 78 females passed secondary examination conducted by West Bengal Board of Secondary Education. Qualitative and quantitative variables revealed individual variation and sexual dimorphism as well in handwriting. It was suggested that sex or gender is present in handwriting in much the same way as it is present in movement of the whole body.

Keyword : Sex role, handwriting

INTRODUCTION

Over the years, through a gradual accumulation of knowledge there has come the understanding that each person's writing contains certain individual characteristics. The fact that each person's handwriting contains individual differences is the fundamental principle on which handwriting comparisons are based, and on which testimony is given in and accepted by courts of law. The basis of this principle is simple and logical. The natural and subconscious handwriting characteristics developed by the individual (Srihari *et. al.*, 2002) are a product both of the movements of the hand which writes and the mind which directs the writing. These two influences result in an infinite number of possible combinations of individual writing habits, each combination representing the sum of numerous physiological and psychological factors peculiar to the writer. There are some complicating factors, which must be considered in the comparison process. First, no individual can write exactly the same way twice. This is called natural variation and a reasonable amount of it is indicative of genuine writing. The problem arises when variations present in the questioned writing are not represented in the known writings collected by the investigator. It then becomes difficult to determine whether these dissimilarities are variations not included in the known writings submitted, or differences, which indicate that another writer, was actually involved.

In spite of the extensive use of handwriting analysis by industries in many countries (King and Koehler, 2000; Shackleton and Newell, 1994) there is little solid evidence for a connection between handwriting and personality or occupation (Eysenck and Gudjonsson, 1986; Furnham and Gunter, 1987; Klimoski and Rafaeli, 1983; Neter and Ben-Shakhar, 1989; Tett and Palmer, 1997). The only research that shows a consistent relationship with handwriting is the judgment of sex of handwriting (Barr, 2002, Goodenough, 1945; Hamid and Loewenthal, 1996; Hayes,

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1996; Lester *et al.*, 1977). Most research into handwriting and sex has been conducted in the USA and in Britain, however, Hamid and Loewenthal (1996) also found a consistent difference in the gender of handwriting both in English and Urdu, with similar levels of accuracy of identification (68%). Whereas Western reports of handwriting find that female handwriting has greater circularity (Lester *et. al.*, 1977) handwriting in Urdu was judged to be more “delicate and decorative” than for men. Even though there may be slight differences in the manifestations of these sex differences, it is interesting to find a report of a cross-cultural similarity suggesting that differences in handwriting arise not so much from a social context but more from a biological determinant. One candidate for possible influence is the effect of androgens that “masculinise” behaviour and conceivably neural substrates during the critical prenatal period. A particularly sensitive period when there is an increase in androgens in from 7 to 24 weeks with an optimum level in the 18th week (Wilson, 1999). Recent work on prenatal differences in androgen experience had focused on the possibility of markers that are associated with such androgen production. If these markers are associated with a behaviour, this would suggest that prenatal levels were linked to (or as they are an antecedent, even had a role in causing) this behaviour. Similar effect in relation to sexual dimorphism has been demonstrated in most of the adult anthropometric and physiological variables and indices including shape and size (Malina and Bouchard, 1991) and also the ratios between the lengths of the index and ring fingers (Manning *et al.*, 1998; Manning 2002; Lippa, 2003). Nevertheless, birth weight also revealed sex role (Bandyopadhyay, 1995; Banerjee 1969). Furthermore, hair histological and quantitative studies (Daschaudhuri and Chopra, 1983, 1984; Chanda and Bandyopadhyay, 2006) indicated major sex role. A further area of exploration is the relationship between these variables and sex role identification. The Bem sex Role Inventory (BSRI, Bem, 1974) has been one of the most influential measures of gender differences based as it is on stereotypes of female nurturance and expressiveness and male instrumentality and autonomy. Wiggins and Broughton (1985) demonstrated that the BSRI feminine scale is strongly related to love, whereas the masculinity scale is associated with dominance. The relationship between the BSRI and sex of handwriting under the influence of sex hormone (Beech and Mackintosh 2005) will be of particular interest. In Indian context attempt has been made to understand effect of heredity and environment on handwriting (Singla 1991) among the population (twins and sib pairs) from Northern India with regard to English handwriting. To best of our knowledge no attempt so far has been taken into consideration to understand variation and sex difference in handwriting in India. The present study investigates the likelihood that potential differences in sex hormones are a significant influence on differences in writing styles between the sexes.

MATERIALS AND METHOD

The data for the present study has been collected from 165 (87 males and 78 females) individuals from Ichapur, Barasat, Madhyamgram of 24 Pargans (N) district, West Bengal, India. All the individuals of the present study passed Secondary (Madhyamik) examination conducted by West Bengal Board of Secondary Education (WBBSE). The mean age of the

males and females were 18.37 years and 18.32 years respectively and all participants were habitual right handed. All participants were asked to complete a questionnaire that includes specific information on age, occupation, education, family type, income etc.

Each subject was given same white paper (A4 size, matrix premium executive paper) and gel pen (cello) and requested to sit comfortably and write the following paragraph. This paragraph has been recommended by Osborn (1929), since it contains all the capital letters, small letters, figures and punctuation marks. The subject was requested not mind their calligraphy but to write at their habitual speed and manner.

“Our London business is good, but Vienna and Berlin are quite. Mr. D.L. Loyd has gone to Switzerland and I hope for good news. He will be there for a week at 1946 Zemott St. and then goes to Turin and Rome and will join Col. Parry and arrive at Athens, Greece on Nov 7th or Dec 2nd. Letters should be addressed : King James Bird. 3580. We Expect Chas. E.Fuller On Tuesday. Dr. L. Moquaid and Robt. Unger, Esq., Left on the ‘Y.X.’ Express tonight”.

For qualitative analysis, five handwriting features have been selected following Thorson (1976), Egeth *et al.*, (1976) with modifications for a better degree of accuracy.

Features :

- General pictorial similarity
- Writing slant
- ‘t’ bar positioning
- ‘i’ dot positioning
- Alignment of lines

General pictorial similarity : Each handwriting sample has been thoroughly examined with regard to overall pictorial appearance, writing quality, formation of letters and figure writing impulses, writing style, mode of connection, spacing between letters, etc has been compared between the male and females on the basis of degree of similarity. The observations have been classified into two classes :

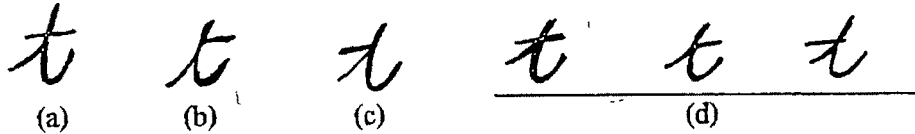
- a) Pictorial similarity
- b) No, pictorial similarity

Writing slant : Writing slant indicates the angle of letters in relation to the imaginary of actual base. This is almost a fixed habit and it is highly significant under certain conditions. The writing slant has been classified into four classes.

- a) Vertical
- b) Right hand slant
- c) Left hand slant
- d) No, fixed pattern

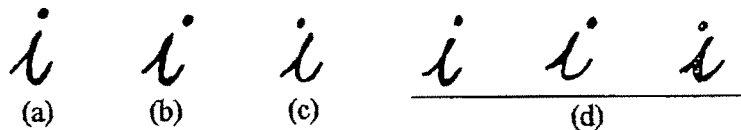
‘t’ bar positioning : The nature of ‘t’ bar positioning of the handwriting samples has been examined in words ‘at’ and ‘to’ and on the basis of the positioning of ‘t’ bar with respect to the stem of letter ‘t’. The writing samples have been divided into four classes.

- 't' bar crossing the stem
- 't' bar to the right of the stem
- 't' bar to the left of the stem
- No, fixed pattern



'i' dot positioning : The 'i' dot positioning has been examined in the handwriting samples and on the basis of this writing features. The samples have been classified into four classes.

- 'i' dot at the middle of the stem
- 'i' dot to the right of the stem
- 'i' dot to the left of the stem
- No, fixed pattern



Alignment of lines : Alignment in writing is the relation of the letters or line of writing to an actual or imaginary base line. The samples have been classified into four classes.

- Horizontal alignment
- Upward alignment
- Downward alignment
- No, fixed pattern

For quantitative analysis of handwriting, those handwriting characteristics have been selected following (Li *et al.* 2005; Shrihari *et al.*, 2002, Marques *et al.*, 2005) with modifications, which were comparatively easy to measures. Handwriting features were measured by a general ruler and slide calipers in appropriate places.

Features :

- Total number of lines (TL)
- Starting of paragraph from the top margin (vertical distance) (VD)
- Starting of paragraph from the left margin (horizontal distance) (HD)
- Mean spacing between the lines (MS)
- 't' bar length (TBL)
- 't' staff length (TSL)

Total number of lines : Total number of lines of each handwriting samples has been counted and recorded since the matter and the space provided for writing is the same for all subjects.

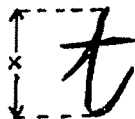
Starting of paragraph from the top margin (vertical distance) : The vertical distance between the printed lines of the proforma and the apex of the first letter 'O' of the word 'Our' has been measured by excluding the width of the stroke-forming letter 'O'.

Mean spacing between the lines : The total spacing between the lines has been measured and the mean was computed.

't' bar length : The horizontal length of the 't' bar in the words containing letter 't' have been measured and their mean was calculated



't' staff length : The vertical length of the 't' in the words containing letter 't' have been measured and their mean was calculated



The obtained data were checked and managed in Microsoft Excel work sheet for analysis.

RESULT AND DISCUSSION

The present study revealed a general pictorial similarity within the males and females. But the general pictorial features were found to be with tidiness among the females compared to that of the males. However, the other qualitative features partially indicated observable sex differences. With regard to writing slant females demonstrated significantly ($P < 0.01$) higher incidences (79%) right slanting compared to that of the males. Similarly, significant ($P < 0.05$) sex difference in terms of higher incidences (78%) 't' bar to the right stem has been noticed among the females in comparison to males.

Apart from these two qualitative features considered in the present study other features, e.g. 'i' dot positioning and alignment of lines did not reveal any sex difference.

Distribution of handwriting variables of Bengalee males and females has been presented in Table 1 and 2 respectively. It would be apparent from the tables that significant ($P < 0.05$) sex difference has been noticed in total number of lines, horizontal distance and mean spacing between the lines.

Pearson correlation coefficient (r) of handwriting variables TL, VD, HD, MS TBL and TSL among males and females presented in table 3 and 4. The females demonstrated significant relationship ($P < 0.05$) among TL, VD, HD and MS. Contrary to that the males did not demonstrate any relationship among the above-mentioned variables. But the 't' bar and staff length revealed strong correlation ($P < 0.05$) in both the sexes. Linear regression analyses were undertaken with all handwriting variable separately to determine the amount of variation (adj.

R²) within the sex. Results (not shown) demonstrated that the greatest amount of variation of MS (46%) explained by TL among the females. On the other hand TBL explained 77% of variation of TSL among the female.

Handwriting has long been a subject matter of interest and study by graphologist, geneticist and forensic analyst. The study on consistency of handwriting revealed the fact general consistency over the years (Hayes, 1996; Marrs and Cermaks, 2003). The success of any handwriting comparison rides on two factors : the quantity and quality of the questioned writing for identification, and the quantity and quality of the questioned writing for identification, and the quantity and quality of the known writings submitted for comparison. In most cases, the success of the handwriting comparison is directly related to the quantity and quality of the known material submitted by the investigator for comparison. Apart from ethnic variation (Cheng et al., 2005) and individual variation in handwriting (Kam *et al.* 2001; Srihari et al., 2003) studies on sexual dimorphism in handwriting has been studied worldwide. Most research into handwriting and sex has been conducted in the USA and in Britain; however, Hamid and Loewenthal (1996) also found a consistent difference in the gender of handwriting both in English and Urdu. Even though there may be slight differences in the manifestations of these sex differences, it is interesting to find a report of a cross-cultural similarity suggesting that differences in handwriting arise not so much from a social context but more from a biological determinant.

In the present study it was noticed that among the females there is more consistency in the quantity and quality of the questioned writing for identification, which is corroborative with the study in USA, that erratic handwriting is associated with pathology but scores for sex role correlated significantly with handwriting tidiness and also Western reports of handwriting find that female handwriting has greater circularity (Lester et. al. 1977) handwriting in Urdu was judged to be more “delicate and decorative” than for men. Male sex role predicted tidy writing (Sappington and Money, 2003). In Indian context, Singla (1991) attempted the effect of heredity and environment on handwriting based on DZ and MZ twin pairs along with family studies. MZ twins demonstrated highest relationship in qualitative and quantitative features in handwriting. Nevertheless, DZ twins (like sex) revealed overall more (25%) similarity, while DZ (unlike sex) demonstrated overall less (10%), which reflects the effect of sex role on handwriting. The present study also stimulate the issue of the probable effect of sex vis-a-vis the potential differences in sex hormones in significant influence on differences in handwriting. It would be worth mentioning that most of the studies related to sex difference have been conducted in English scripts, but studies regarding native language scripts are seemed to be necessary to provide additional knowledge of sexual dimorphism in handwriting.

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Table. 1. Distribution of handwriting characteristics among Bengalee males

Variables	Mean	SD
Total no of lines	9.44	1.12
Vertical distance (mm)	1.946	0.983
Horizontal distance (mm)	3.01	1.28
Mean spacing between line (mm)	2.53	1.22
't' bar length (mm)	2.59	0.89
't' staff length (mm)	3.96	0.81

Table. 2. Distribution of handwriting characteristics among Bengalee females

Variables	Mean	SD
Total no of lines	9.87	1.35
Vertical distance (mm)	1.985	1.01
Horizontal distance (mm)	2.862	1.23
Mean spacing between line (mm)	3.012	1.11
't' bar length (mm)	2.55	0.18
't' staff length (mm)	4.06	0.82

Table. 3. Pearson correlation coefficients(r) of handwriting variables among Bengalee females

	TL	VD	HD	MS	TBL	TSL
TL	—	0.50*	0.62*	0.68*	0.79*	0.88*
VD	0.51*	—	0.51*	0.35*	0.42*	0.51*
HD	0.62*	0.51*	—	0.54*	0.52*	0.56*
MS	0.69*	0.34	0.53*	—	0.54*	0.65*
TBL	0.79*	0.42*	0.52*	0.53*	—	0.74*
TSL	0.89*	0.51*	0.56*	0.65*	0.74*	—

*P < 0.05

Table. 3. Pearson correlation coefficients(r) of handwriting variables among Bengalee males

	TL	VD	HD	MS	TBL	TSL
TL	—	0.04	0.17	0.12	0.30*	0.44*
VD	0.04	—	-0.12	-0.02	0.08	0.15
HD	0.17	-0.12	—	0.07	0.09	-0.04
MS	0.12	-0.05	0.07	—	0.20	-0.03
TBL	0.31*	0.08	0.05	0.20	—	0.37*
TSL	0.43*	0.15	-0.004	-0.03	0.37*	—

*P < 0.05

MENSTRUAL HEALTH PROBLEMS OF MARRIED WOMEN IN KOLKATA: A STUDY ON TWO CONTRASTING SOCIOECONOMIC GROUPS

Amrita Dasgupta and Subha Ray*

Abstract : Menstruation is one of the most important physiological developments that take place in the body if a female at the time of adolescence. This physiological development also introduces a number of health related problems that affect the life of a woman on a regular basis with consequences at both individual and societal levels, which is not or prioritized in some way by health professionals or policy makers. An emphasis on menstrual health would not only reinforce understanding of the links between menstruation and pregnancy but could also foster understanding of the linkage between menstrual problems and other reproductive morbidities. The present study has been conducted on the married women of two contrasting socioeconomic groups of Kolkata Metropolitan area. The objective of this study is to compare and contrast the magnitude of menstrual health problems that exists between the married women belonging to two different socioeconomic groups. The results suggest that women of both the groups differ in problems related to regularity of menstrual cycle, skipping of menstrual cycle, duration of menstrual discharge, nature of menstrual discharge and types of premenstrual and menstrual problems.

INTRODUCTION

The function of menstruation has been debated for at least 2500 years. Modern explanations for the origin of menstruation have generally sought to propose an adaptive significance to it. In other words, menstruation provided some type of advantage to the organism who had it over those who did not. These types of explanations suggest that menstruation has a protective function for the female (Piñón, 2002). Moreover, in human, menstrual cycle function is closely linked with a woman's fecundity and may affect the chronic disease risk factors (Harlow, 2000; Harlow and Ephross, 1995; Cooper and Sandler, 1999; Cooper *et al.*, 1999). For these reasons, clinicians and epidemiologists interested in women's health have proposed that menstrual cycle patterns provide a view into female reproductive biology. Despite the appeal of this paradigm (Ellison and Cabot, 1990) only a handful of population-based studies have investigated "normal" menstrual function (Treolar *et al.* 1967; Chiazze *et al.* 1968; Waller *et al.* 1998; Harlow and Campbell, 1994, Harlow and Matanowski, 1991; Vollman, 1977; Matsumoto *et al.* 1962). Most of the females experience some problems and discomforts both before and during the menstrual period, which sometimes affects their daily life activities in some way or the other.

Generally, women face some premenstrual problems like, variable degree of abdominal pain, emotional irritability, bloat and breast tenderness. Researchers have put forward a number of explanations behind the premenstrual problems (Bair, 1995; Donnica, 2000; Mullins, 2001; Watkins, 2000). Problems like, amenorrhea, dysmenorrhea and menorrhagia are the major menstrual disorders, which are generally experienced by women at the time of menstrual discharge. Amenorrhea and irregular menstrual cycle maybe associated with infertility

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(Goodenough *et al.*, 1998; Fox, 2004); dysmenorrhea is characterized by menstrual cramps, which occur due to the contraction of uterus muscle (Goodenough *et al.*, 1998; Fox, 2004) and maybe disruptive to women's life and productivity (Walraven *et al.*, 2002); menorrhagia or heavy bleeding most commonly occurs just after a women starts menstruation, which may lead to anemia or may be a signal for the presence of infection, fibroids or cancer (<http://www.menstrualdisorder.com/>; Goodenough *et al.*, 1998).

Data on menstrual problems from developing countries are tend to be limited (Harlow and Campbell, 2000). However, some works on women health based on multi country, national, community and local levels included information on menstrual health (Omran and Standley, 1976 and 1981; Khatri and Gupta, 1978; Bang *et al.*, 1989; Bhatia *et al.*, 1997; Matsuda *et al.*, 1997). In developing countries amenorrhea ranges between 5 and 9 percent, menorrhagia between 5 and 15 percent and irregular menstrual cycle between 5 and 17 percent. Dysmenorrhea has been found in 35 to 78 percent of the adolescent girls and 3 to 20 percent of them reported that the severe nature of the problem has disrupted their usual activities (Harlow and Campbell, 2000). In the United States, menstrual disorders are the most common gynaecological complaint, affecting nearly 2.5 million women belonging to the age around 18-50 years, of which annually two third of the women consult doctor and 31 percent spend a mean time of 9.6 days in bed (Kjerulff *et al.*, 1996). A study on menstrual disorder on rural Gambia shows that 35 to 73 percent of the adolescents experience dysmenorrhea. (Walraven *et al.*, 2002).

In India, the range of menstrual disorders varies from 33 to 63 percent (Koenig *et al.*, 1998). One of the studies from rural North India shows that 6.1 percent of currently menstruating women reported having menstrual problems. Among these 33 percent had excessive bleeding, 27 percent had occasional (off and on) bleeding, and 20 percent had continuous bleeding for 10 days or more (Patel and Khan, 1996). A research in South India reveals that 87 percent of adolescent women suffers from menstrual pain and/or discomfort (Narayan *et al.*, 2001). Dysmenorrhea is also considered as the main cause of absence from school among young females in India (Dagwood, 1995).

From India, though there are some data on the menstrual health problems of unmarried adolescent girls, but that of married women is few. However, from the State of West Bengal, there exist no published data on menstrual health problems of this particular group.

The present study intends to find out the magnitude of menstrual health problems of the married women in general and of contrasting socioeconomic group in particular.

MATERIALS AND METHODS

Area of Study

The present study has been conducted on married women belonging to higher (HSEG) and to lower (LSEG) socioeconomic groups. The place selected for this study falls under Kolkata Municipal Corporation (KMC) Ward Nos.- 124, 128 and 121 (Behala area) situated in the southern side of greater Kolkata metropolitan. These wards comprise both slum as well as middle class households. In the present study, women residing in slum areas have been considered as the representatives of LSEG and those from middle class households as HSEG.

Ever-married women aged between 20 and 40 years of age i.e. (before the attainment of menopause), and have delivered at least one live birth, presently not lactating or pregnant and not taking oral contraceptive pills have been selected for the present study. This particular study area has been selected on the basis of operational convenience.

Sample

A total number of 180 subjects (HSEG-100, LSEG-80) have been selected for the study. The subjects have been selected by visiting every household of the abovementioned KMC wards. Subjects who have fulfilled the study criteria and have also agreed to volunteer to participate in the study have been selected. The nature of the study was explained to all the participants prior to the collection of data.

Methods of data collection and data types

Information on socioeconomic status and menstrual problems were collected by using well-tested questionnaire/schedule. Data on menstrual problems (both premenstrual and the time of menstruation) have been collected on the basis of subject's reported morbidity status during the last one year period preceding the date of interview.

Premenstrual problems are defined as the problems, which occurred to them just few days before the start of menstruation. Premenstrual problems include, abdominal pain, back pain, vomiting, headache, flatulence, tenseness, emotional irritability, breast tenderness, etc. Data on problems at the time of menstruation include, abdominal pain, heavy menstrual discharge, cessation of menstruation, etc. The subjects were asked if they had experienced 'irregular periods' by defining it as menstruation that takes place at a non-specific interval of time, skipping of menstrual cycle by defining it as a complete skip for at least one menstrual period in a year.

The study was conducted during the time period of January 2006 to 1st week of August 2006.

STUDY DESIGN

It is intuitively known that the difference in socioeconomic status has a major impact on health status. In the present study, married women from HSEG and LSEG have been selected in such a way so that if there exists any differences in menstrual health problems, the differences can be attributed to the differential socioeconomic condition of these two groups.

RESULTS

Socioeconomic status

Majority of the couples of the HSEG have attained 'college level education' (58.0%) compared to the couples of LSEG among whom majority has received 'school level education' (75.0%). Less than 25.0% of the couples of the LSEG are 'nonliterate'. Majority of the husbands of the subjects belonging to HSEG are in 'service' (66.0%) compared to that of LSEG (16.25%). Most of the husbands of the LSEG subjects are engaged in 'business' (36.25%) and as 'skilled labour' (30.0%). On the other hand, majority of the subjects of both the groups are 'homemakers' (HSEG 77.0% and LSEG 85.0%), barring a few from both the groups.

The mean age of the subjects are 32.8 ± 2.07 years (CI, 95%, 32.435.1) for HSEG and 33.8 ± 3.07 years (CI, 95%, 32.1-35.6) for LSEG.

Menstrual Problems

1. Regularity in the menstrual cycle	HSEG	LSEG
Regular	65.0 (65)	52.5 (42)
Irregular	35.0 (35)	47.5 (38)
2. Skipping of menstrual cycle		
Skipped	24.0 (24)	16.25 (13)
Not skipped	76.0 (76)	83.75 (67)
<i>No. of times skipped</i>		
Once	62.5 (15)	46.15 (6)
More than once	37.5 (9)	53.85 (7)
<i>Medical expertise sought for skipping</i>		
Yes	37.5 (9)	46.15 (6)
No	62.5 (15)	53.85 (7)
3. Duration of Menstrual discharge (days)		
1-3	42.0 (42)	53.75 (43)
4-6	55.0 (55)	40.0 (32)
More than 6 days	3.0 (3)	6.25 (5)
<i>Amount of menstrual discharge</i>		
Heavy	17.0 (17)	21.25 (17)
Medium	74.0 (74)	66.25 (53)
Low	9.0 (9)	12.5 (10)
<i>Days of peak discharge</i>		
1st	19.0 (19)	27.5 (22)
2nd	41.0 (41)	41.25 (33)
3rd		6.25 (5)
4th		1.25 (1)
1st and 2nd	16.0 (16)	10.0 (8)
2nd and 3rd	21.0(21)	12.5(10)
1st and 3rd	3.0(3)	1.25(1)
1st, 2nd and 3rd		1.25(1)

<i>Nature of discharge</i>	HSEG	LSEG
Fluid	45.0 (45)	58.75 (47)
Fluid and clot	55.0 (55)	41.25 (33)
4. Premenstrual problems		
Present	50.0 (50)	50.0 (40)
Absent	50.0 (50)	50.0 (40)
<i>No. of premenstrual problems</i>		
At least one problem	84.0 (42)	82.5 (33)
At least two problems	10.0 (5)	15.0 (6)
At least three or more	6.0 (3)	2.5 (1)
<i>problems</i>		
<i>+Premenstrual problems by types</i>		
Some degree of abdominal pain	42.0 (21)	87.5 (35)
Back pain	28.0 (14)	25.0 (10)
Weakness	30.0 (15)	50.0 (20)
Others*	12.0 (6)	30.0 (12)
5. Problems at the time of menstrual discharge		
Present	52.0 (52)	48.75 (39)
Absent	48.0 (48)	51.25 (41)
<i>Types of problems</i>		
Pain and discomfort	53.85 (28)	33.33 (13)
Period with heavy discharge	32.69 (17)	43.59 (17)
Periods with scanty discharge	17.31 (9)	23.08 (9)
<i>Number of problems</i>		
At least one problem	96.15 (50)	100.0 (39)
At least two or more problems	3.85 (2)	-
<i>Administration of medicine for relief from problems related to menstrual discharge</i>		
Administered	32.69 (17)	30.77 (12)
Not administered	67.31 (35)	69.23 (27)

Figures in the parenthesis indicates the actual numbers

+HSEG- 50; LSEG- 40; * Others : breast tenderness, vomiting, headache, feeling of heaviness in the body.

Menstrual problems

The above table shows that less than half of the women of both the groups (HSEG 35.0% and LSEG 47.5%) experience irregular menstrual periods. Though the frequency of irregular menstrual periods is more among the women of LSEG, compared to that of HSEG, the difference is statistically not significant. An overwhelming majority of the women of both the groups (HSEG 76.0%, LSEG 83.75%) reported that their menstrual period has not skipped during the last one-year period. Among the HSEG women who have skipped (62.15%) the menstrual cycle during the said time period, majority have skipped once only compared to majority of the LSEG women (53.85%) who have skipped more than once. Only nine and six of the women of HSEG and LSEG groups respectively have sought medical expertise for treating this problem. However, in none of the cases the differences are statistically significant.

The duration of menstrual discharge varies in both the groups, mostly between 1-3 and 4-6 days period. Most of the HSEG women (55.0%) experience this discharge for a period of 4-6 days compared to majority of the LSEG women who experience this for 1-3 days period. Again, most of the women of both the groups (HSEG 74.0%, LSEG 66.25%) reported to have medium amount of menstrual discharge, followed by heavy and low amount. Around 40.0% of the women of both the groups (HSEG 41.0%, LSEG 41.25%) experience maximum amount of discharge on the second day of the period. The nature of menstrual discharge differs between the women of both the groups. Majority of the women of HSEG (55.0%) and LSEG (58.75%) have a discharge which is 'a mixture of fluid and clot' and 'fluid only' respectively. None of the differences between the women of both the groups regarding menstrual discharge (duration, nature and the peak discharge day) are statistically significant.

Half of the women of both the groups suffer from premenstrual problems and more than 80.0% of them suffer from at least one of the problems. Abdominal pain, back pain and weakness are the major premenstrual problems experienced by most of the women of both the groups. The frequency of reporting of abdominal pain by the LSEG women is twice than that of HSEG.

About half of the women (HSEG 52.30%, LSEG 48.75%) suffer from a problem related to menstrual discharge. Most of the HSEG women suffer from 'pain and discomfort' at the time of menstrual discharge (53.85%) compared to those of LSEG, among which the problem of 'heavy discharge' is maximum (48.75%). Of the three types of problems related to menstrual discharge, an overwhelming majority of the subjects of both the groups (> 95%) suffer from at least one. Around 30% of the women of both the groups (HSEG 32.69%, LSEG 30.77%) who suffer from any problem related to menstrual discharge, administer medicine to get relief. A very small section of the women of both the groups (HSEG 10.27%, LSEG 7.69%) also resort to physical exercise to get relief from the pain and discomfort they experience during menstrual discharge.

DISCUSSION

The objective of the present study is to find out the similarities and differences in the menstrual health problems of the married women of two contrasting socio economic groups.

The analysis of the results suggests that women of both the groups differ in problems related to regularity of menstrual cycle, skipping of menstrual cycle, duration of menstrual discharge, nature of menstrual discharge and types of premenstrual and menstrual problems. Though these differences are statistically non significant, however, the trend reflected from the results of this exploratory study suggests that menstrual health problems do differ between the women of two contrasting socioeconomic groups. A large-scale study, in terms of locale and subjects and with more sophisticated analysis might reinforce the findings of the present research.

In the present study, some degree of pain, weakness, back pain are the major premenstrual problems experienced by half of the women, which corroborates with the work carried out on Saudi women (Moawed, 2001). In general, the present study suggests that the frequency of the problems related to menstruation, encountered by the married women is comparatively lesser than the adolescent unmarried females of other parts of the world (including India) and also from the State of West Bengal (Basu *et al.* 2006; Dutta and Ray 2006; Fishben and Aizen, 1975; Rayan, 1995; Severino and Moline, 1995, Harlow and Campbell, 2000; Poureslami and Osati Ashliani, 2002, Walraven *et al.*, 2002; Chompootaweeep *et al.*, 1996).

Menstrual health problems result from biological systems that depend upon a woman's hormonal status and the influence of the environment. The determinants of the menstrual health problems need to be identified in biological and local cultural contexts in order to ameliorate the adverse reproductive outcomes and to yield important insights into women's reproductive biology.

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TWIN INFANTICIDE: A CASE REPORT FROM ARUNACHAL PRADESH, INDIA

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Key words : Twins, Infanticide, Muklom, Arunachal Pradesh

INTRODUCTION :

General belief among some of the communities of North East India is that three vital events—birth, marriage and death, along with some others, are beyond the control of human beings. These are regulated by the God/the Creator/ the Super Power/the Nature as conceived by different religious communities. In humans, unlike most of the other mammals, majority of pregnancies result in one child (singleton) birth. But multiple birth in terms of twins (two babies) triplets (three babies), quadruplets (four babies) occur for multifactorial reasons. This is due to certain specific factors occurring at the time of fertilization at the initial stage of conception. Superstition prevails that if a pregnant woman eats some twin eatables (fruit's vegetables, etc.) she may give birth to twins. Some believe that misfortune also may cause twin births. It is certain that there is no role of any misfortune, superstition, evil power or eating of any particular food item causing multiple birth.

Specific reasons may be responsible for formation of particular type of twins. Neel and Schull (1954) has advocated for at least two distinctly different biological situations for formation of twin in man—the proliferation and fertilization of (1) two ova and (2) only one ovum. Twins are of two types—(a) Monovolar (i.e. twins originating from just one fertilized egg) are on the other hand always alike in sex and are termed “monozygous” (MZ) or ‘identical’ twins (b) Binovolar (i.e. twins originating from two fertilized eggs) may be alike or unlike in sex and are called “dizygous” (DZ) or ‘fraternal’ twins.

According to the Encyclopedia Americana (Ward, 1979) “Infanticide is killing an infant or newborn baby or allowing it to die. The term is sometimes extended to include the abortion of a fetus, the killing of a baby during birth or the killing of children under the age of puberty.”

Infanticide is an accepted practice among some primitive peoples, for whom the struggle for existence is the hardest.

A further economic factor behind the practice of infanticide is that parents eventually have to pay to obtain marriage partners for their children. In most primitive societies marriage involves the exchange of material wealth and the amount involved may be so great that a family can afford to marry off only a limited number of children. In most of these cultures an unmarried person remains in an anomalous position without a means of livelihood.

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Infanticide has had a sacrificial aspect in some cultures. Killing the firstborn in order to placate the gods was prevalent in India until the 19th century and it is thought that this was also the custom among the ancient Hebrews. In some societies, superstitions attached to the birth of twins, to abnormal birth, or to irregular marriage led to killing babies. The execution was carried out in a prescribed way, frequently by poisoning or strangulation.

Twins, triplets, etc. should have the same right and privilege as their singleton counterparts enjoy. But, among some communities of Arunachal Pradesh, particularly the Muklom, one of the endogamous sub-groups of the tribe *Tangsa* of Changlang district, the situation is different. The Muklom, instead of providing equal treatment to their twin babies as it is provided to the singleton babies, kill the twins immediately after birth because they believe that twins are the indication of misfortune, misery, natural calamity to the family and the entire village. So, to avoid those, the traditional prescription for the remedy is to killing the twins immediately after birth.

Similar tradition of killing twins immediately after birth by the Noctes of Arunachal Pradesh has been reported by Kar and Gogoi (1996) who have opined that "Twins are not allowed to live in the society. They are killed immediately after birth. Deformed babies are also killed. Twins and deformed children are considered unnatural. Their presence is believed to bring calamities and misfortunes to the entire community".

TWINNING RATE

Twin birth occurs (Hellin's law) in 85 singleton births, a triplet in $(85)^2$ or 7225 singleton births and a quadruplets occurs in $(85)^3$ or 614125 singleton births and so on (Stern, 1960). The frequency of twin birth varies from population to population. As per McKusick (1972) "The frequency of twinning varies in different ethnic stock. Environmental factors probably also influence the rate of twinning".

The rates of twin birth among some communities of North-East India (Table-1) vary from as low as 0.46% among the Khamti of Lakhimpur, Assam (Sarkar, unpublished) to as high as 2.03% among the population of Dibrugarh, Assam (Sarkar, 1958). Both Lakhimpur and Dibrugarh are plains, whereas the hilly areas like Meghalaya and Arunachal Pradesh show frequencies within the range of lowest and highest values, noted above. The Muklom of Changlang, Arunachal Pradesh shows 0.80% twin birth which is more or less equal to the Monpas of Arunachal Pradesh. The differences in the occurrences of twin births between various communities of North-East India may be postulated as due to difference in ethnic groups and perhaps ecological factors may also be responsible for such variation.

TWINNING AND ITS TREATMENT AMONG THE MUKLOM

Recently the author has collected demographic information on 100 Muklom households (Sarkar, 1996) which includes information on reproductive performance of 123 evermarried Muklom women. It has been observed from the collected information that out of a total 494 pregnancies (Sarkar, 1997) only four pairs of twins were the outcome of four pregnancies. Out of such twins, sex of one pair could not be recorded. Among the remaining three pairs, only one pair (both are girls), born in the District Hospital of Changlang, are the surviving twins.

The Muklom kills the twins because they believe that twin birth is the indication of misfortune and misery to them. They also believe that if they do not kill the twins immediately after birth, the entire village, particularly the family in which the twins were born will face famine, drought, disease, and thunder may damage their crops and other properties in the village. So, with a view to protect the community and its properties from misfortunes and misery, the Miklom kill the twins immediately after birth.

Soon after birth of twins, the mother herself wraps the mouth of the twins by cloth so that the unfortunate twins die due to suffocation. They also pierce the palm and soles of the twins by thorns (Kangtang). In case, the mother disagrees the attending midwife performs the job. After killing, the father of the twins, accompanied by his maternal uncle (mother's brother) or an elderly person of the village, carries the dead twins kept in a bamboo basket or chicken-pen and leaves them on the branch of a pipal tree (*Ficus religiosa*) or let them down the steep hills away from the village. On return home, the maternal uncle of the twins' father closes the door of the house from outside keeping all members of the family inside the room to keep them away from the sunlight during the pollution period which is observed for three days. He then puts some thorny branches at the entrance of the house so that none could enter the house or could come out of the house. All members of the family are required to stay inside the room for three days during which they observe complete silence and are allowed to eat only boiled rice with little salt without any spice or vegetable. On the morning of the fourth day, the maternal uncle of the twins' father opens the door of the house and the family members come out of the room being protected from direct sunlight by wearing an elongated headgear made of palm leaves and bamboo stripes and take bath in a sacred river. Coming back home they worship their God by sacrificing hen, pig or buffalo depending upon the economic condition of the family and offer a good feast to the villagers and relations. During the three days pollution period, no villagers go out for work. The adjacent (nearest) village observes pollution for two days. The distant village, that received the bad news, observe one day abstinence from work. All properties, movable or immovable, of the family are to be disposed of within a period of one year from the date of the incident. The family is, however, allowed to stay in the house for a maximum period of one year within which they are required to construct a new house at a different place, keeping the old one abandoned. One such abandoned house was seen at the village Jungsum during my field work in 1994. During this period of one year, they are to earn money either by selling their properties to others or by taking loans/donations from their relations. The socio-religious customs observed during the period of four days is known as first "Morungphu". The same rituals/ceremonies and restrictions are observed in the case of thundering on house or on agricultural land or on crops and also in the case of unnatural death such as death due to accident. They consider these three events as indicators of misfortune.

The second "Morungphu" is to be observed after one month of the first one. During this period of one month, the villagers do not accept anything hand to hand from any member of that particular family because they believe that while accepting anything hand to hand from the members of the affected family, misfortune may get transmitted from the affected family to the unaffected ones.

Deformed babies as already stated are killed by the Mukloms. Twins are considered unnatural. Their presence in the society as indicated is believed to bring calamities, miseries and misfortunes to the entire community.

Now a days, the Mukloms of Changlang, the youths in particular, because of their awareness and changed attitude are not in favour of killing twins. They have realised that neither any misfortune nor any evil can be caused by the twins. Because of the changed attitude of the Muklom of Changlang towards twins, a pair of twins (both girls), which were born in the District Hospital (former community Health Centre) was accommodated in the family who are growing up happily under the care, love and affection of their near relations, the parents in particular as well as the villagers. However, further detailed study may help to unveil what caused the real transformation.

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Table - 1 : Twins in North-East India

Community	Area	Total Births N	Twin births (Pairs)	%	Sources
Monpa	Mandalaphundung Arunachal Pradesh.	466	4	0.86	Barua, 1984
Monpa	Djong Dirang, Arunachal Pradesh	567	4	0.71	– do –
Muklom	Changlang Arunachal Pradesh	498	4	0.80	Present Study
—	Shillong, Meghalaya	1171	10	0.85	Sarkar, 1958
Hajong	Garo Hills, Meghalaya	999	10	1.00	Barua, 1983
Pnar	Jaintia Hills Meghalaya	—	—	1.37	Khongsdier, 1992
—	Dibrugarh, Assam	1526	31	2.03	Sarkar, 1958
Khamti	Lakhimpur, Assam	434	2	0.46	Sarkar (Unpublished)
Hindu	Dibrugarh, Assam	36923	461	1.25	Sengupta & Barua, 1996
Muslim	- do -	2155	26	1.21	- do -
Khasi	Shillong, Meghalaya	3402	37	1.09	Mondal, 1999 (Personal communications)

GLOBALISATION, INFORMAL SECTOR AND CHILD LABOUR IN A THIRD WORLD URBAN SITUATION

Subrata Sankar Bagchi¹ And Arnab Das²

Abstract : For an anthropologist the experiential forms of globalisation in a Third World city are varied and far from straightforward. While this paper has held the global scenario primarily responsible for the proliferation of informal sector and child labour, present findings also suggest that the local conditions are primarily responsible for the continuation of child labour especially in the Third World cities.

I

Observers believe that the trend of urbanisation is more intertwined with globalisation than ever before. This association between urbanisation and globalisation is more revealed now primarily because the city is now playing a pivotal role in promoting and streamlining globalisation as the global forces are concentrated in the cities. We also know that the present nature of urbanisation and its perilous symptoms in Third World have caused by globalisation and its attendant SAP-related measures.

According to the observers globalisation, if described as an economic and cultural linking of diverse societies across large societies, is not a new phenomenon according to some academicians. However, (according to those academicians) what is new is the speed (with improved technologies enabling much faster transportation of people and goods and the instantaneous transmission of information), the *scale* (making its influence felt in even the most remote places), the *scope* (with much broader and multiple dimensions-economic, technological, political, legal, social and cultural, among others-each of which has multiple facets) and the complexity (numerous global actors creating complexity for the relationships between policy and practice) (UNCHS, 2001). Conceptualising this phenomenon can prove to be very difficult as opinions on globalisation differ sharply among the academics.

CONCEPTUALISING GLOBALISATION

“Globalisation”, though a contested term, generally refers to a set of processes whereby national economies have become progressively integrated in an interconnected global capitalist economy. The World Bank (2000) proposed a definition of globalisation:

“the most common or core sense of economic globalization ... surely refers to the observation that in recent years a quickly rising share of economic activity in the world seems to be taking place between people who live in different countries (rather than in the same country)” (World Bank, 2000).

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Globalisation essentially refers to a set of processes whereby national economies have become progressively integrated in an interconnected global capitalist economy. The global economy is defined as one “where capital flows, labour markets, commodity markets, information, raw materials, management and organisation are... fully interdependent throughout the planet” (Castells, 1992:5).

As indicated earlier that globalisation has not been described as a completely new phenomenon by different observers (Gilbert, 1990; Burbach and Robinson, 1999; Hobsbawm, 1962, 1977, 1987, 1996; Amin, 1992, 1999, 2001, 2002). Globalisation, in its present form, ushered in with the inception of WTO which came into effect with the signing of new GATT after the Uruguay round’ of negotiations or eight years of haggling, on 15th April 1994. Thus the successor organisation of GATT, the WTO came into effect from 1.1.1995 where each member automatically avails Most Favoured Nation’ and National Treatment’ from all WTO members for its exports, and its participation in this increasingly so-called ‘rule-based’ system is aimed towards more stability and predictability in the governance of international trade.

With the emergence of WTO the capitalism was globally re-christened as ‘free market economics’ and this paradigm - at the core of the neo-liberal order - has become the current hegemonic development philosophy as well. It goes by the motto of “trade, not aid” no matter how uneven the former may be. The phenomenon of globalisation can be defined as the changes by the way of production is organised as required by the general dismantling of trade barriers and the free mobility of financial and productive capital, in the context of accelerated technological change. Thus globalisation was meant to promote total freedom of movement and capital, goods and services and advocates the opening of nation’s economies and competition in the world market in the world market in conditions of absolute freedom. Labour is the only commodity which is not considered free in the market, and as seen from different experiential forms of globalisation that the state and the market create constant pressure in the forms of legal measures, repression of strikes and/or co-optation of union and union leaders, to reduce its cost. Globalisation also promotes the elimination of the regulatory functions of the state apparatus and promotes the denationalisation and privatisation of its goods and services. Thus market is supposed to determine the growth of distribution, production, technological innovation and even social needs. The role of the state has meant to be greatly reduced and weakened under this era of globalisation making the state vulnerable to the external pressures and even, international crises.

Critics of the globalisation theory, however, argue that the concepts utilised by globalisation theorists are inadequately developed and defined (Thirft, 1994: 369-70) while others dispute the theory’s historical significance. Still others, question the empirical foundations of the thesis, suggesting that it both overstates the reach of both the financial system and multinational corporations—which, they suggest, “continue to operate from distinct national bases” — while simultaneously underplaying the extent to which world trade encompasses just a few countries (Hirst and Thompson, 1996: 195-96).

GLOBALISATION AND THIRD WORLD

Globalisation brings about the reproduction of status quo at both ends of world capitalism: at the centre of world accumulation or at its periphery. Globalisation can be invoked to justify financial deregulation in central countries as easily as fixed exchange rates coupled to central bank administered 25%-plus interest rate in the periphery; it can prompt heavy government spending in R & D and in physical infrastructure (liberalism notwithstanding) in the centre and squander public assets by 'selling' them out to private capitals, home based or foreign, in the periphery. In the urban agglomerations it can justify massive investment in infrastructure for high finance and big capital headquarters, preparing competitive 'world cities' in the core of world capitalism, whereas it can also vindicate the lack of the most elementary investment in the name of depleted resources of the nation in view of the requirements of global integration, at the periphery. While it argues for increase in productivity of labour without a corresponding rise of the subsistence level at the core, it can be invoked equally easily in favour of the reproduction of the hindrances to the development of the productive forces in the periphery. Global economic integration is creating opportunities for people around the world, but there is wide divergence among countries in expanding trade, attracting investment and using new technologies. Third World countries are getting increasingly marginalised from these growing global opportunities and the income gaps between the poorest and richest countries are widening (Camoy, et. al 1993; Amin, 2002). Today, in much of the Third World economic growth has slowed and living standards for the majority have suffered in the face of rising unemployment and mass poverty. Even the World Bank came out, thou with different conclusion, on the problem of Third World marginalisation (World Bank, 2000).³

Thus globalisation has rendered the Third World countries marginalised in the world capitalist system. At the same time it has been observed that more and more people are getting marginalised in the Third World countries and the number of marginalised people in the Third World cities is increasing very rapidly. Observers also believe that at the root of the Third World marginalisation in this era of globalisation lays the astounding magnitude of debt of the Third World countries to the Western banks (like citi bank etc.), governments, IMF and World Bank; and the severe constraints these countries are facing to repay those loans.

GLOBALISATION AND THIRD WORLD CITY

Cities promote globalisation, and are in turn transformed by it, as it rewrites the rules of the geopolitical game, challenging the role of States and modifying the relationship between

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3. For many of the poorest least-developed countries the problem is not that they are being impoverished by globalisation, but that they are in danger of being largely excluded from it. The miniscule 0.4 percent share of these countries in world trade in 1997 was down by half from 1980. Their access to foreign private investment remains negligible. Far from condemning these countries to continued isolation and poverty, the urgent task of the international community is to help them become better integrated in the world economy, providing assistance to help them build up needed supporting institutions and policies, as well as by continuing to enhance their access to world markets (World Bank, 2000).

local, national and world levels. On a global scale, urban development operates on these three levels. Megalopolis (with more than 4 or 5 million inhabitants), linked together, form a global urban frame-work. According to Carnoy et. al. (1993) the new international division of labour (NIDL) has not only led to the emergence of "a multipolar system of economic power" within the developed world, but has caused increased differentiation within the developing world. Nevertheless, the impact (predominantly negative) of globalisation and/or structural adjustment programme (SAP) has been felt hardest in this 'multipolar' Third World economy and particularly to the Third World urban poor and marginalised where the combination of austerity budgets (meaning less spending on education, health and other services) market liberalisation, and exchange rate reform has resulted in many cases in sharp increases in food prices, and in terms of livelihoods, has also eliminated significant formal sector work, and reduced wages. However a caveat is necessary here as the relationship between globalisation or SAP and the resultant experiential forms at the city level is far from straightforward (Harris, 1996). Quite different experiential forms at the city level have been found in comparable macroeconomic changes and must be examined in the light of different national and local variables. These include fixed variables, the national elite's approach towards globalisation û a function of various factors, not least the level of political compulsion to accommodate SAP û and finally a wide range of factors affecting a particular city's responses to globalisation imposed from above.

The problem of disentangling the relationship between globalisation and its experiential forms at the city level constitutes one specific part of a wider problem of discerning the impact of the global changes. Perhaps inevitably this lack of clarity has resulted in widespread contention, particularly apparent in the debate over whether global forces have served, and are serving to undermine the importance of "place". This anthropologically significant debate has punctuated by disagreement over two questions, particularly relevant to the current discussion, which examine whether or not the economic reach of nation-states is waning (O'Brian, 1992) and, related to this (Martin, 1994), whether cities now constitute a more appropriate and meaningful unit of economic as well as social analysis (Lipietz, 1992). Pursuing a different line, some observers have noted the tendency, a result of globalisation, for some cities to seek to "delink" from their national economies (Lever, 1997). However, the relevance of this argument û for which the empirical evidence is, anyway, mixed û for most cities in the developing world is doubtful. For the majority of cities, competing in a national rather than global space, participation in the national economy remains demonstrably important for the survival of that city. The hypothesis on 'world cities' (Sassen, 1991, 1994), on the other hand, posits the existence of key urban centres like New York, London and Tokyo which function to co-ordinate and control the new international division of labour. The emerging 'world city literature' (Dandekar and Arbor, 1998; Short, and Kim, 1999; Marcuse and van Kempen, 2000), however, constitutes a break with the past in the sense that previous urban studies generally did not venture beyond the national, or even local, scale in explaining urban phenomena or urban change.

GLOBALISATION AND INDIAN SCENARIO

For a Third World nation like India the journey towards the globalisation effectively started with Government of India's adoption of the Structural Adjustment Programme in 1991 which implied an intensification of contradictory imperatives in the policy domain. The immediate compulsion for India adopting SAP was the balance of payment crisis which forced the government to initiate a series of economic reforms from July 1991. The whole policy package makes a significant departure from the past. The long cherished principles of growth with justice, social responsibility and accountability, equity and self-reliance have been rendered obsolete with the new slogans of "liberalisation", "privatisation", "globalisation", "efficiency" and "competitiveness". Economic growth has virtually come to be equated with their growth, and structural adjustment has come to mean adjustment coerced on the weak and the marginalised. It is an adjustment inflicted by the state through policy or due to the very absence of it, in order to accommodate global players as well as interests and classes aligned with or subservient to them. The key underlying proposition of this paradigm shift is that growth, efficiency and even the prosperity of people are conditioned upon globalisation, and, therefore, on such accommodation (Bagchi, 1999). In effect, the present patterns of globalisation - induced adjustment and reforms have generated the duality of integrative and exclusionary processes in the Indian economy and society.

GLOBALISATION AND INFORMAL SECTOR IN THIRD WORLD

One of the results of globalisation is the informalisation of the national economies particularly in the Third World. The growing numbers of poor embarks on productive activities not registered in the formal economy and therefore are not subject to national fiscal regimes and regulatory controls. These workers in the informal sector⁴ of the economy frequently move back forth between rural and urban settings, seeking employment wherever possible.

The concept of informality was first applied in the academic anthropology by Keith Hart to individuals who engaged in self-employment (in other words urban poor, also called in that study as 'marginal' or 'traditional' population). Nevertheless, Hart emphasised the notable dynamism of informal activities and their diversity, which went much beyond the conventional portrayal of the urban self-employed as "shoeshine boys and sellers of matches" (Hart 1973). Later the ILO defined the informal sector as an urban "way of doing things," whose enterprises are characterised by: a) low entry barriers in terms of skill, capital, and organisation; b) family ownership of enterprises; c) small scale of operation; d) labour-intensive production with outdated technology (relative to the formal sector); and e) unregulated and competitive markets (ILO, 1991). Additional characteristics derived from this definition included low levels of productivity and a low capacity for accumulation (Tokman 1982).

4 Various known as the unofficial economy, the black economy, the concealed economy, the unstructural sector, the parallel economy, the non-observed economy, the invisible economy, the illegal economy, the urban informal sector, the informal service sector, the people's economy, the population economic sector, etc.

The debate relating to the concept and definition of the informal sector has been of huge magnitude. Studies on informal sector have embraced such an astonishing heterogeneity of economic activity that it is virtually impossible to draw firm conclusions from their comparison. In fact I found that such studies appear to have contributed both to the debate surrounding the dualist and nondualist conceptions of the economy and to the empirical resolution of questions concerning economic institutions, the organisation of firms, enterprises, labour markets, the economic strategies of workers, or the economic and social inequalities attaching to any or all of these.⁵

Proliferation of informal sector with the advent of globalisation can be revealed by the fact that towards middle of the nineties, an estimated proportion of approximately 40 percent of the economically active urban population of the three developing regions (230 million persons) worked in the informal sector. If in addition, China and workers in Latin American micro-enterprises are considered, 430 million persons (53 percent of the economically active population) were informally employed (ILO, 1997). Real informal employment was still higher, as these figures understate female informal work and do not include child labour, or informal supplementary work to formal occupations in the formal sector.

To get the detailed picture of employment of the individual countries in South Asia one must mention the World Employment Report 2001 published by ILO which observes that the labour participation rate of the individual South Asian countries varies considerably (Table -1) from 77.8 per cent in Nepal to 43.2 per cent in India. This participation rate also widely differs according to gender from country to country as in some countries like Pakistan the female participation rate is as low as 15.2 per cent. Same report reveals that the employment to population ratio also varies widely among these countries (Table-2). The overwhelming majority of this labour is absorbed in the informal sector of the economy as the same report on examining the impact of the new information and communication technologies on life at work at a time when the global employment situation still remains of considerable concern. While there have been some significant positive developments, especially in the United States and some industrialised countries, in most parts of the world the growth of new employment opportunities still remains insufficient to productively employ those who have lost jobs due to restructuring and the new entrants into the labour force.

5. For details of this debate see Hart (1973), Frank (1970), Roberts (1978), Richardson (1984), Peattie (1987), Boeke (1953), McGee (1973), Quijano (1974), Minigione (1984), ILO-PREALC (1978, 1991), Moser (1978), Tokman (1982), Fiege (1979), Agurto (1998), deSoto (1989), Wilson (1998), Vilas (1996), Burbach, Nunez and Kagarlitsky (1997), Esteva (1998), Amin and Robins (1990), Portes and Wilson (1981), Quijano (1974), Capecchi (1989), MesaLago (1985), Moser (1978), Portes et al. (1989), Fortuna and Preetes (1989), Connolly (1985), Sethuraman (1985), Gutmann (1977, 1979), CEESP (1987) and Tanzi (1980, 1982).

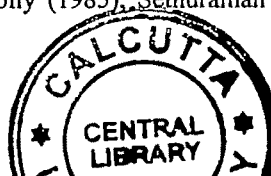


Table 1: Labour Force Participation Rate (Percentages) in South Asia

	1990 MF	1990 M	1990 F	1995 MF	1995 M	1995 F	Latest year MF	Latest year M	Latest year F	latest year
Bangladesh	—	—	—	—	—	—	72.6	88.8	55.9	1996
India	43.2	55.9	29.3	44.6	56.6	33.0	43.2	55.8	29.7	1996
Maldives	49.5	77.3	20.2	51.3	74.0	28.1	—	—	—	
Nepal	—	—	—	—	—	—	77.8	80.1	75.7	1999
Pakistan	49.3	84.9	11.3	48.4	82.3	12.7	49.9	82.4	15.2	2000
Sri Lanka	61.5	77.9	45.3	54.9	74.8	35.8	57.3	77.5	37.6	1999

Table 2: Employment to Population Ratio (Percentages) in South Asia

	1990 MF	1990 M	1990 F	1995 MF	1995 M	1995 F	Latest year MF	Latest year M	Latest year F	latest year
Bangladesh	—	—	—	—	—	—	78.7	95.8	61.0	1996
India	—	—	—	44.2	56.0	31.7	42.7	55.1	29.5	1996
Nepal	—	—	—	—	—	—	84.3	88.3	80.5	1999
Pakistan	49.8	85.1	12.0	48.4	82.9	12.1	40.8	67.5	11.8	2000
Sri Lanka	53.3	71.6	35.2	47.8	67.3	29.1	52.5	69.2	36.3	1998

The ILO estimates that at the end of 2000 some 160 million workers are unemployed, most of them first-time jobseekers. Unemployment rates among young workers are almost everywhere at least twice as high as the average. Of these 160 million unemployed workers, about 50 million are in the industrialised countries, including Central and Eastern Europe. In addition about 500 million workers are unable to earn enough to keep their families above the US\$ 1 a day poverty line. These are almost entirely in the developing world. And of the workers who are not among the poor, many lack basic job and income security. There is reason to believe that the numbers in this group are growing in many parts of the world. Informal sector is not only the feature of the Third World economy now, it also booming in most advanced economies (Pinnaro and Pughe 1985; Sassen-Koob 1989; Sassen 1994; Goldsmith and Blackely 1992) and in the transitional economies of Eastern European countries (Grossman 1989; Manchin 1993).

II

.... AND CHILD LABOUR .

Thus the worldwide trends reveal that the processes of globalisation have a distinct spatial specificity. Their outcomes also show particular geographical patterns. Although globalisation certainly affects rural areas, global forces are centred in cities both in the developed world and in the Third World. It is in cities where global operations are centralised and where one can see most clearly the phenomena associated with their activities: changes in the structure of employment, the formation of powerful partnerships, the development of monumental real estate, the emergence of new forms of local governance, the effects of organised crime, the expansion of corruption, the fragmentation of informal networks, proliferation of child labour and the spatial isolation and social exclusion of certain population groups. Third World cities like Calcutta (now Kolkata) are particularly prone to the adverse manifestations of globalisation as the worse effects of SAP have been felt hardest in those cities.

There is another struggle in the form of labour standards which too often posed in terms of irreconcilable trade offs between the developed nations and the Third World countries. The debate over the labour standard and informal sector has really been intensified with few advanced countries trying to establish multilateral rules in various international forums permitting punitive trade measures to be taken against countries deemed to be failing to uphold core labour standards. In addition to efforts within the ILO to achieve improved labour standards for worldwide, parallel efforts have been made to have a 'social clause' introduced into WTO trade rules. This would allow trade sanctions against countries deemed to be failing to uphold core labour standards. Strictly speaking, the labour standards at issue in the discussions on whether they should made compulsory comprise the seven ILO core conventions, often grouped in four categories (referred to as basic principles by the ILO), namely freedom of association and collective bargaining (Nos. 87 and 98); freedom from forced labour (Nos. 29 and 105), elimination of discrimination (Nos. 100 and 111) that the abolition of child labour (no. 138). Apart from these conventions, Commitment 3 of the Declaration of the 1995 World Summit for Social Development held in 2,000 and 1998 ILO Declaration on Fundamentals Principles and Rights at Work are important in this regard. These two declarations Along with U.N. charter and the 1948 Universal Declaration of Human Rights regarded by many advanced countries as indicating international agreement on what are to be considered as core and labour standards.

Observers on international development argue that improving the quality of jobs undermines their quantity; that the collective right to national development requires the suppression of individual rights; and that international labour standards subvert national sovereignty (Lim 1990; Deyo 1987, 1989; Kochan and Nordlund 1988). Opposition to this approach tend to speak of the economic benefits of efficiently allocating resources, while ignoring the unique attributes of the resource labour. In this scenario, workers, employers, and governments all lose; increased worker discontent leads to political instability in the Third World, declining wages generate an international chain reaction of market contraction and under-consumption (Kochan and Nordlund 1988; Portes and Castells 1989).

The ILO has estimated that, in the developing countries alone, 120 million children (mainly in Asia and Africa) aged between 5 and 14 are involved in full-time work, and the work is a secondary activity for another 130 million children. Situation is particularly worst in the cities of the Third World as a result of the Structural Adjustment Programme (SAP). Although poverty and its concomitant marginalisation are the main reasons why children work, cultural and social norms can also play a vital role. Thus the anthropological researches focusing on the global predicament of child labour and the exploitation of children in the labour market remained crucial (Boyden, 1991; Nieuwenhuys, 1996; Szanton Blanc, 1994) along with the quest to eliminate child labour has concerned non-governmental organisations (ILO, 1991; UNICEF, 2002; Szanton Blanc, 1994) worldwide. Existing accounts assess children's agency as producers and consumers in a capitalistic order through the labours they perform (Hendrick, 1997; James, Jenks, and Prout, 1998; Nieuwenhuys, 1996; Stephens, 1995; Szanton Blanc, 1994; Zelizer, 1985). In fact, these anthropological contributions to the issue of child labour are very important as they bring into light children's importance, the significance of children's work and abilities, and their involvement in the local and global system (Mintz, 1977; Nieuwenhuys, 1996; Stephens, 1995; Szanton-Blanc, 1994). Through these accounts, children's work is not merely "socialization, education, training, [or] play," (Nieuwenhuys, 1996: 237) but rather a vital contribution to the world around them.

The movements against the practice of child labour (be it in the form of encouraging the customer to boycott a product or to prefer a product or service bearing a label over another for ethical reasons as the exploitation of child labour is morally reprehensible) might, depending on their origin or methods used, risk being arbitrary or being put to improper use. By attacking a product or a category of products, the labelling or boycott campaign aims at a sector geared to export and overlooks the fate of the majority of children working on other products or for the domestic market alone. Moreover, labelling and boycott campaigns do not involve any accompanying measures for the children themselves who, as a result, might find themselves without a job. Even worse, they might result in children being transferred from one sector of activity to another, which is more or better hidden, and even more hazardous for the children involved.

While anthropological assessments have emphasised the lack of a universal definition of "child labour" because the meanings are culturally constructed and relative, therefore proving the difficulty in implementing a universal model to be used to combat these exploitative conditions of the worlds disadvantaged children (James, Jenks, and Prout, 1998), they have also expanded the scope of children's work and children's worth within a capitalist system. However, the discipline has yet to conduct culturally relative examinations comprehensively through ethnography of the physical, emotional, and sexual abuses children face, the impact this has on their lives, and the child's own opinions about his or her position as a child labourer (Ruark, 2000). Also, the social, political, and economic inequalities that lead to the continual practice of exploitative child work have yet to be explored. These anthropological works have, similar to those compositions of non-governmental organisations and policy makers, made generalisations when assessing child labour, talking about the situation around

the world (Boyden, 1991; James, Jenks, and Prout, 1998) and not child labour in India, Kenya, Guatemala, or Bangladesh as individual nations with their own constructions of the child, childhood, and child labour. Many have failed to research how these factors are played out through specific forms of work and analyse the variations that exist from country to country, culture to culture. Most of the anthropological works have examined the global without exploring the local (Mintz, 1977).

The magnitude of the problem of child labour has also been no less contentious. As indicated earlier that the according to the ILO estimation, in developing countries alone, 120 million children (mainly in Asia and Africa) aged between 5 and 14 are involved in full-time work, and that work is a secondary activity for another 130 million children. The number of child labourers engaged in different types of work in India has always been a bone of contention between the Government of India or government sponsored institutions as well as observers and independent observers. According to one such official estimation made by the Central Labour Ministry the number was 17.0 million in 1992-93. The same report says that each year there is a .5 million decrease in the quantum of child labourer in India. However, it must be mentioned here that the Indian Government has been criticised many times by ILO, latest occasion being the recent 2001 Phuket ILO meeting, for its effort to conceal the truth about the magnitude of the country's child labour problem. The major child labour intensive occupations in India include Match and Fire Works in Sivakasi; Stone-quarries in Kerala, Andhra and Madhya Pradesh; Mines in Meghalaya; Fishing in Kerala; Handloom in Tamil Nadu; Hosiery in Tamil Nadu; Lock Making in Uttar Pradesh; Carpet Weaving in Jammu and Kashmir and Uttar Pradesh; Pottery Making in Kashmir and Uttar Pradesh; Glass factories in Uttar Pradesh; Gem Polishing in Rajasthan; Beedi Making in Andhra, Tamil Nadu, and Gujarat; Brassware Industry in Uttar Pradesh; Diamond Industry in Gujarat; and Leather Units in Uttar Pradesh, Madhya Pradesh and Rajasthan. Indian government has formed many commissions and committees on child labour from the pre-independence period like Labour Investigation Committee (1946), National Commission on Labour (1969), Harbans Singh Committee (1977), Committee on Child Labour (1979) and Committee on Child Labour in Indian Industries (1981). These commissions/committees made several observations as well as recommendations and some of which were accepted by the government. But the ground reality in this regard remained the almost the same each time. There are several safeguards in the Indian Constitution in different articles [Article 23, 24, 39(e), 39(f), 41, 45 and 47] to tackle with the problem of child labour. Indian government has also framed several legal provisions from the pre-independence period to deal with the problem of child labour. Most recent and possibly most comprehensive of these legislations is the Child Labour (Prohibition and Regulation) Act of 1986 under which government has prohibited the employment of children in dangerous and hazardous industries and services and regulated their engagement and working conditions in nonhazardous jobs. Employers found offending this law can be punished with 3 to 12 months of rigorous imprisonment or a fine of up to 20,000 rupees or both. This law has also proved to be inadequate due to various conceptual, definitional as well as operational gaps and omissions in the existing law which have so-far been exploited

by various unscrupulous employers of the child labour. The Supreme Court of India passed a landmark judgement in 1996 to give more teeth to this law. The new provisions to prevent child labour in the hazardous occupations include payment of Rs. 20,000/- by the offending employers for every child labourer employed, giving alternative employment to an adult member of the family in place of the withdrawn child labourer or payment of an amount of Rs. 5000/- for each child labour by the appropriate government, payment of interest on the corpus of Rs. 25,000/- (collected from the employers and government) to the family of the child withdrawn from the work, provision of education to the child withdrawn from the work and constitution of a separate cell in the Labour Department for the purpose of monitoring. There are other national initiatives to abolish or minimise the child labour. National Child Labour Policy, announced in 1987, is one such important effort. This policy seeks to emphasise effective enforcement of the relevant laws like Child Labour (Prohibition and Regulation) Act, 1986; the Factories Act, 1948; the Mines Act, 1952; the Plantation Labour Act, 1951 etc. It also proposes to focus on some general development programmes for benefiting children and has taken project-based action plans (known as National Child Labour Projects - NCLP) in the areas of high concentration of child labour. As of now, there are 100 NCLPs in 13 child labour endemic states. Different international agencies like ILO, UNDP, UNDCP, UNESCO, UNFPA, UNIFEM, UNAIDS etc. have taken up many initiatives to abolish or minimise the problem of child labour in India. ILO is the principal organisation which came up with many significant Conventions and Recommendations for the ratification of the individual countries. Some of the important ILO Conventions ratified by India include Convention No. 5: Minimum Age (Industry) 1919, Convention No. 123: Minimum Age (Underground Work) 1965, Convention No. 6: Night Work for Young Persons (Industries) 1919, Convention No. 15: Minimum Age (Trimmers Stokers) 1921, and Convention No. 16: Medical Examination of Young Persons (Sea) 1921. There are eight core conventions which ILO termed as fundamental/human rights conventions. Indian government has ratified four of those conventions but did not ratify the other four for various reasons. The four ratified conventions are i) Forced Labour Convention (Convention No, 29), ii) Abolition of Forced Labour Convention (Convention No, 105), iii) Equal Remuneration Convention (Convention No, 100), and iv) Discrimination (Employment Occupation) Convention (Convention No, 111). The four non-ratified conventions by the Indian government are i) Freedom of Association and Protection of Right to Organised Convention (No.87), ii) Right to Organise and Collective Bargaining Convention (No.98), iii) Minimum Age Convention (No.138), and iv) Worst forms of Child Labour Convention (No. 182). Child labour (covered by the core ILO Convention No. 138 on Minimum Age and the Convention on the Elimination of the Worst Forms of Child Labour, which amplifies the former) raises other kinds of problems, which merit careful consideration. The latter convention commits countries to working with the ILO to fix time-bound policies to eliminate the worst forms of child labour. As already indicated earlier in this chapter the debate on International Labour Standards and the Core Conventions of the ILO is continuing on between the developed world led by USA and the developing world led by G21 countries which includes China, India, and Brazil among other countries. Started

from the Uruguay Round of talk of WTO at Marrakech continued in Singapore, Doha, Seattle, and most recently in Cancun this debate has become the core issue at WTO and the WTO negotiations have reached to a virtual deadlock over this debate. Other important international initiatives include IPEC (International Programme on the Elimination of Child Labour) by ILO, Programme for Street Children by UNDCP, UNESCO's Learning Without Frontiers (LWF), activities on Child Trafficking by UNAIDS and Social Labelling of Child Labour Products by various agencies.

III

Child labourers, in this work, have been selected from the marginalised people residing in three areas in Calcutta (now Kolkata). These fieldsites were selected in a manner which allowed the present worker to engage in long-term research in more than one urban locale (more precisely three locales) in Calcutta (now Kolkata) for comparative purposes. Thus three populations were selected on the basis of their differential positions on urban marginality in the city of Calcutta (now Kolkata). First two populations (i.e. Population I and Population H) were 'Illegally' constructed squatter settlements with the residents did not have any security of tenure on the land they were living. Population I was selected on the basis of the information of their imminent eviction as a part of the proposed widening of a road. This settlement was selected to initiate a study on urban marginalisation in a Third World city and thus the selection of the Population I was an extreme case selection. Selection of Population H was meant for facilitating a long-term study among the urban marginals with no security of tenure and was living with worsened level of collective consumption. Canal-side population in the city of Calcutta (now Kolkata) fulfilled this criterion more than any other marginalised population settlement in this city. The selection of the present stretch was done after some preliminary studies in other stretches and the present worker found this stretch as ideal for study due to various reasons line congenial atmosphere for fieldwork, presence of meaningful contacts, presence of willing informants etc. This settlement was also evicted on 10th December 2002. Population III, on the other hand, was found to be a recognised slum population for more than two decades where the residents were living with some kind of security of tenure in the form of Thika tenancy act under which they could live on that land but were unable to sell. Population III served an ideal setting for studying the outcome of providing the security of tenure among the marginalised people in the city of Calcutta (now Kolkata). This slum has been the beneficiary of most of the urban development programmes dedicated to providing shelter and other basic services to the urban poor. Almost all the child labourers are from Population I and Population II (639 out of 646 child labourers).

Age and sex wise distribution of the child labourers (Table-1) shows that among the child labourers more than half came from the age group 10-14 years and rest were from the age group 5-9 years. The frequency of boys was slightly higher than that of the girls among the working children. The age and sex wise distribution of child labourers in comparison to the children in similar age group (Table-2) was also observed and revealed a grim reality that in the studied population more than three fourth of the children in 5-9 years age group

and more than 90 per cent of the children in 10-14 years age group were child labourers. It was further observed that nearly 80 per cent of the boys as well as more than 75 per cent of the girls in 5-9 years age group and more than 90 per cent of the boys as well as the girls in 10-14 years age group were child labourers in the studied population

Observations on different aspects of literacy of these child labourers were also made in this study. Thus the standard of education among the child labourers (Table-3) has shown that nearly 80 per cent of them were either non-literates or could sign their names only. Distribution of the child labourers according to the years of schooling (Table-4) has shown that only 10 per cent of the child labourers spent more than three years in school and nearly 30 per cent spent one to three years. The picture regarding the distribution of child labourers according the continuity of study (Table-5) has reflected a similar reality. More than 50 per cent of the child labourers were not going to school while most of the remaining child labourers (nearly 39 per cent) were somehow continuing their education in the non-formal schools. Present study also looked into the main reasons for leaving/not sending the child labourers to school (Table-6). It was found that the main reasons were either family's need for more contributions from those children (nearly 35 per cent) or family could not afford to continue their study (nearly 38 per cent). Significant proportion of such discontinuations from study was caused by a need for money for the child labourer's own survival or due to the uninteresting study curriculum.

Observations were also made on the different aspects of work of these child labourers. To start with, the distribution of the type of work of child labourers (Table-7) has shown that more than 80 per cent child labourers were wage earners and only few of them were engaged in household businesses/occupations or self-employed. No remarkable gender specific trend was visible in this regard except the fact that the girls were more employed in the household businesses/occupations and less in wage earning. The most frequent age of entering in work (Table-8) among these child labourers was between the ages of 6 years and 9 years. Working hours (Table-9) of majority of these child labourers (75 per cent) were above 6 hours. It was further observed during this fieldwork that most of the child labourers got less than 30 minutes of resting time within work hours (Table-10). It was also evident that nearly 60 per cent of the child labourers had 6 working *days* in a week (Table-11). Many of these child labourers had to work on all 7 days in a week.

Obviously almost all the *child labourers were working in the informal sector of economy* (Table-12). It has been reflected from this distribution that as high as 98.02 per cent of the child labourer were working in the informal sector of economy. Few child labourers (1.08 per cent) who were absorbed in the formal sector of the economy were working without any formal contract and were mostly doing some odd jobs in those establishments.

If one looks at the *type of primary occupation* of these child labourers (Table-13), one finds that most of these child labourers were either engaged as urban waste recycle workers i.e. Type-E occupation (42.72 per cent) or in occupations which the present worker termed as the sellers of their labour to people for the personal service and consumption of the buyers

instead of using their labour power to obtain a surplus value i.e. Type-C occupations (42.57 per cent). Some of these children were also engaged as apprentices to skilled worker or handicraft persons or small merchants i.e. Type-B (13.47 per cent) and few were in the 'traditional' or formal sector of economy i.e. Type-A (1.08 per cent) though as temporary workers as well as the occupations which are called here as the skin sellers exchanging their survival against the possibility of potential destruction or deterioration i.e. Type-D occupations (0.31 per cent). Gender-wise frequency distribution has shown that in Type-E and Type-B occupations male child labourers were more frequently engaged. On the other hand, female child labourers were more frequently employed in Type-C occupations.

The *details of these primary occupations* (Table-14) shows that most frequently occupational type of these child labourers i.e. the Type-E occupations and one would find that the frequency of scrap pickers (30.34 per cent) was much higher than the other occupations in this type (as also in other types) like scrap sorters (7.28 per cent) and door-to-door scrap buyers (5.11 per cent). Male child labourers were engaged more frequently in Type-E occupations i.e. as scrap pickers (14.86 per cent), door to door scrap buyers (4.18 per cent) or as scrap sorters (4.02 per cent). In the next most frequent category of occupations among these child labourers i.e. Type-C occupations as high as 21.21 per cent were engaged as domestic helps (all of them were girls) and 7.12 per cent were tea stall/restaurant workers (majority of them were boys). Rest of the child labourers in this category were working as the helpers in construction works (2.94 per cent), porters (2.63 per cent), van/rickshaw pullers (2.32 per cent), bidi workers (2.32 per cent), shoe-shiners (2.01 per cent), thonga makers (0.62 per cent) and some other occupations not falling in the earlier types (1.39 per cent). Among the child labourers working as porters and van/rickshaw pullers all were male child labourers but among the helpers in construction work boys and girls were in almost equal proportions. Among the child labourers working as bidi workers boys were dominating the frequency (1.39 per cent) whereas among the child labourers working as shoe-shiners girls were more frequent (1.08 per cent) and all the thonga maker child labourers were girls. In the Type-B occupations most of the child labourers were apprentice to skilled workers, handicraft persons or skilled workers (12.69 per cent) and boys were in overwhelming majority among these apprentices (11.61 per cent). Few of these Type-B child labourers were small merchants like fruit sellers, candy sellers etc. (0.77 per cent) and all of them were boys. All the child labourers in Type-A occupations were engaged as temporary workers without any formal contract (1.08 per cent) and all were boys.

Another important observation in the present work was that as many as 23 per cent of these child labourers were engaged in hazardous *nature of work* (Table-15). The *level of daily income* (Table-16) of these child labourers mostly varied between Rs. 10/- and Rs. 25/-. Few (28 per cent) of them used to earn less than Rs. 10/- per day while some of them (nearly 26 per cent) used to earn between Rs. 25/- and Rs. 50/-. The daily earnings of a few (7 per cent) used to exceed Rs. 50/- per day.

Distance of the work place (Table-17) of these child labourers in most cases varied between

one km and five kms and in some cases it was within one km from the household. *Mode of transport* (Table-18) of the child labourers to reach their work places in most cases was nonexistent as they preferred to walk the distance even if some mode of transport was required due to their financial constraints. In some cases they used to ride on buses or trains to reach their work places. These child labourers were mostly *spending nothing or very little (10 to 25 per cent) of their earnings in transport to the work places* (Table-19). The *time spend to travel to the work place* (Table-20) was nominal or less than 30 minutes for these child labourers.

The availability of the *facilities which should be available at any work place* involving children in work was also studied (Table-21). These include hazard prevention, self-protection mechanisms, first aid facilities and toilet facilities for child labourers working in hazardous conditions. It was observed that in the workplaces of these child labourers hazard prevention mechanisms were either inadequate or absent. Self protection measures were also either inadequate or absent in the workplaces. First aid facilities in all the work places of these child labourers were either absent or inadequate. Similar situation prevailed as far as the toilet facilities in the work places were concerned. It was also found that most of the child labourers working in hazardous conditions had experienced accidents of various kinds for two to five times in their working life even if they had not been working in the hazardous conditions (Table-22).

In most cases wage earning child labourers were *working in the working units where the number of employees* (Table-23) ranged from five to ten. Barring a few exceptions these wage earning child labourers were the *recipients of their own wages* (Table-24) although in some cases their father or some other elder member of the family used to receive the wages on behalf of the child labourers. The *type of behaviour met from the fellow adult employees* in the work places by the child labourers (Table-25) in most cases was categorised as occasionally harsh or frequently harsh. The same was found to be true for the *type of behaviour met from the employer in the workplace* (Table-26) by the child labourers. In most occasions, these child labourers *received wage or income on weekly basis* (Table-27).

All the child labourers presently studied *had a family* with which they were living (Table-28). More than 65 per cent of these child labourers were *contributing more than half their total earning to his/her family* (Table-29). Sizable sections of these child labourers were also contributing ten to fifty per cent or less from their earnings. In more than 71 per cent cases the level of dependence of the households on child labourer's income was substantial and in the rest of the cases the families were either nominally dependent or not dependent on the contributions of child labourers. Only in less than 5 per cent of the cases the dependence was complete (Table-30). The level of spending of the child labourers from his/her earnings (in most cases) did not cross the ten per cent mark of their earnings but there were significant number of cases where the child labourers spent more than 50 per cent of their earnings (Table-31). Data on the *frequency of leaving job by the child labourers* (Table-32) reveals that the overwhelming proportion of them either had never left their job or changed jobs just once in their working life. Approximately one fifth of the child labourers surveyed changed

jobs from two to five times or more than five times. The *reasons for leaving job* by these child labourers in most cases included intolerable working condition or very low pay, accident-proneness of the job or dismissals (Table-33).

Observations on the child labourers' own perceptions about the reason of their working were also made during this fieldwork. Most of the child labourer respondents said that their families' inability to financially support their studies was one the main reasons for their working. Other respondents cited reasons like the family's need of the contribution, helping the family business and the need of money for his/her own survival. Few child labourers said that boredom to study or Teaming a skilled and lucrative job or prevalent tradition of the family to work early or destiny etc were the reasons for their work. It must also be mentioned here that many working children could not respond properly to the question of their main reason of working.

It was also observed during this fieldwork that the parents of the child labourers responded differently to the reasons of their children's working. Most of these parents responded in favour of family's need for a contribution from the child. Other most cited reasons in this regard were family's inability to continue the child's study, apprenticeship to a skilled and lucrative job seemed better than study or child's inattentiveness to study. Some other parents of these working children either stated that the family did not interfere in the child's own decision of working or cited some other reasons like spontaneous decision of working from the family without any specific reason, family tradition of working early during the childhood etc. Many parents also could not respond properly in this regard.

It was found that the employers' responses to questions on the reasons for taking children for work in their establishments were equally varied. During this fieldwork, most of these employers responded unequivocally that they employed the children to help their (the children's) families and explained that they could not turn down the requests of the parents of these child labourers. Some employers stressed reasons like working children need less pay/wage, are very obedient or that the particular work needs child labour. Yet another reason given was the skill of the particular child. It was also found that some other employers did not respond properly in this regard.

III

Thus, as this study shows, the phenomenon of globalisation has a profound effect on the city life in Third World. Though the experiential forms of globalisation at the city level is not always straightforward, it has been observed here that the proliferation of informal sector especially in the Third World city areas is inextricably bound with the progress of globalisation. Similarly studies indicate that the phenomenon of child labour has actually thrived due to this increasing informalisation of labour in the Third World cities. This study among the marginalised people in the city of Calcutta (now Kolkata) also corroborates the view that the child labourers are getting increasingly inducted in the more hazardous, more strenuous and at the same time less gainful informal economy. These child labourers are mostly coming from the marginalised population and the dependence of their families on their incomes are

also very high in most cases. According to this observation, these child labourers started working mostly due to the inability of their family to continue their studies or apprenticeship to a skilled and financially gainful work became more meaningful than the continuation of study. These observations in the city of Calcutta (now Kolkata) can hardly be compared with rapidly changing landscape of the city as more and more new over-bridges, beautification projects, widened roads, high-rising buildings, market places, multiplexes etc have also been coincided with the progress of globalisation. As Southall notes, "All the most admirable and desirable achievements have been intensified in the city, as have the worst horrors" (1997:1) where marginalisation as well as informal economy and child labour as its fall out are real and continuing⁴ trends in the Third World which shows no signs of reversal.

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APPENDIX

Table-1: Distribution of the child labourers According to age and sex

AGE GROUP	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
5-9 Years	25.39%	23.07%	48.46%
10-14 Years	27.55%	23.99%	50.64%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table 2: Distribution of the child labourers and the child population according to age and sex

AGE GROUP	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Child labourers in the age group 5-9 years	25.39%	23.06%	48.45%
Total children in the age group 5-9 years	100.00%	100.00%	100.00%
Total no. children in the age group 5-9 years	235	227	462
Child labourers in the age group 10-14 years	27.55%	23.99%	51.54%
Total children in the age group 10-14 years	100.00%	100.00%	100.00%
Total no. of children in the age group 10-14 years	236	199	435

Table 3 : Distribution of the child labourers according to the standard of education

EDUCATIONAL STANDARD	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Non-Literate	13.47%	43.34%	56.81%
Can sign only	24.83%	0.46%	22.46%
Class I to IV	12.69%	3.10%	15.79%
Class V & above	4.95%	0.00%	4.95%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table 4: Distribution of the child Labourers According to the years of schooling

NUMBER OF YEARS IN SCHOOL	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
None	13.47%	43.34%	56.81%
One year to three years	30.03%	2.17%	32.20%
More than three years	9.44%	1.39%	10.99%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table - 5: Distribution of the Literate child Labourers According to the continuity of study

WHETHER CONTINUING STUDY	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
No	50.18%	4.30%	54.48%
Formal school	6.45%	1.08%	7.53%
Non-formal school	34.77%	3.23%	37.99%
All	91.40%	8.60%	100.00%
No. of literate child labourer	255	24	279

Table 6: Distribution of the Child Labourers According to the Main reason for Leaving/not sending to school

MAIN REASON FOR LEAVING/NOT SENDING TO SCHOOL	CHILD LABOURERS
Family needed contribution	38.87%
Family could not afford to continue the study	37.76%
Study became uninteresting	5.01%
Apprenticeship to a skilled job seemed more meaningful	3.66%
Need money for own survival	18.69%
All children who are either not literate or dropped out	100.00%
No. of children who are either not literate or dropped out	519

Table-7 : Distribution of the Child Labourers According to the type of Work

TYPE OF WORK	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Wage earning	44.74%	35.91%	80.65%
Self employed	4.49%	3.56%	8.05%
Household business/occupation	3.72%	7.59%	11.30%
All	52.94%	47.06%	100.00%
No of child labourer	342	304	646

Table -8: Distribution of the child Labourers According to the Age of Entering Work

AGE OF ENTERING WORK	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Below 6 years	8.51%	11.45%	19.97%
6 Years to 9 years	29.26%	11.76%	41.02%
10 Years to 14 years	15.17%	23.84%	39.01%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table-9: Distribution of the Child Labourers According to the Working Hours per day

WORKING HOURS PER DAY	CHILD LABOURERS		
	Male	Female	Total
Less than 2 hours	4.18%	6.96%	11.14%
2 hours to 6 hours	5.42%	8.67%	14.09%
Above 6 hours	43.34%	31.42%	74.77%
Total	52.34%	47.06%	100.00%
No. of child labourer	342	304	646

Table-10 : Distribution of the Child Labourers According to the Availability of Resting Time within the Working Hours

RESTING TIME	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
NoN existent	20.90%	15.79%	36.69%
Less than 30 mins	31.27%	29.26%	60.53%
30 mins to one hour	0.77%	2.01%	2.79%
More than one hour	0.00%	0.00%	0.00%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table-11: Distribution of the Child Labourers According to the Number of working days in a week

NO. OF WORKING DAYS IN A WEEK	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
7 Days	13.78%	18.42%	32.20%
6 Days	33.59%	26.01%	59.60%
5 Days	1.55%	1.24%	2.79%
4 Days	1.39%	0.62%	2.01%
3 Days	0.93%	0.46%	1.39%
Less than 3 days	1.70%	0.31%	2.01%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table -12 : Distribution of the Child Labourers According to the Type of Sector of the Economy they work

SECTOR OF THE ECONOMY	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Formal sector	0.77%	0.31%	1.08%
Informal sector	52.17%	46.75%	98.92%
All	52.94%	46.75%	100.00%
No. of child labourer	342	304	646

Table -13: Distribution of the Child Labourers according to the type of primary occupation

PRIMARY OCCUPATION	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Workers of 'Traditional' sector of the economy (A)	1.08%	0.00%	1.08%
Skilled workers (<i>Mistris</i>), Handicraft persons and small merchants (B)	12.38%	1.08%	13.46%
Sellers of their labour to people for the personal service and consumption of the buyers instead of using their labour power to obtain a surplus value (C)	15.63%	26.94%	42.57%
Skin sellers exchanging their survival against the possibility of potential destruction or trade their deterioration (d)	0.00%	0.31%	0.31%
Urban waste recycle workers (e)	23.53%	19.04%	42.57%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table-14: Distribution of the child labourers according to the primary occupation (Details of occupations)

TYPES	PRIMARY OCCUPATION	CHILD LABOURERS		
		MALE	FEMALE	TOTAL
A	Temporary	1.08%	0.00%	1.08%
	Permanent	0.00%	0.00%	0.00%
B	Apprentice to skilled worker; Handicraft Persons	11.61%	1.08%	12.69%
	Small merchant	0.77%	0.00%	0.77%
C	Domestic Help	0.00%	21.21%	21.21%
	Porter	2.63%	0.00%	2.63%
	Van/rick shaw puller	2.32%	0.00%	2.32%
	Helper in construction	1.86%	1.08%	2.94%
	Tea Stall/Restaurant worker	5.26%	1.86%	7.12%
	Helper in Transport	0.00%	0.00%	0.00%
	Shoe Shiner	0.93%	1.08%	2.01%
	Bidi Worker	1.39%	0.93%	2.32%
	Packet (<i>Thonga</i>) Making	0.00%	0.62%	0.62%
	Other	1.24%	0.15%	1.39%
D	Beggar	0.31%	0.00%	0.31%
	Prostitute	0.00%	0.00%	0.00%
	Delinquent	0.00%	0.00%	0.00%

TYPES	PRIMARY OCCUPATION	CHILD LABOURERS		
		MALE	FEMALE	TOTAL
E	Scrap picker	15.30%	14.86%	30.19%
	Scrap buyer (Door-To-Door)	4.18%	0.93%	5.11%
	Scrap sorter	4.02%	3.25%	7.27%
	Scrap dealer	0.00%	0.00%	0.00%
All		52.94%	47.06%	100.00%
No. of child labourer		342	304	646

Table-15 : Distribution of the Child Labourers According to the Nature of work

NATURE OF WORK	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Non-Hazardous	38.70%	37.93%	76.63%
Hazardous	14.24%	9.13%	23.37%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table-16: Distribution of the child labourers according to the level of daily income.

LEVEL OF DAILY INCOME	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Less than Rs. 10/-	11.61%	16.41%	28.02%
Rs. 10/- to Rs. 24/-	19.97%	18.73%	38.70%
Rs. 25/- to Rs. 49/-	17.03%	8.82%	25.85%
Rs. 50/- or more	4.33%	3.09%	7.43%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table -17: Distribution of the child labourers according to the distance of the workplace

DISTANCE OF THE WORK PLACE	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Within one km	9.44%	16.25%	25.70%
One KM to Less than five KMs	34.67%	26.78%	61.45%
Five Kms and above	8.82%	4.02%	12.85%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table -18: Distribution of the child labourers according to the mode of transport to the workplace

PRIMARY MODE OF TRANSPORT	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Not required	11.14%	20.74%	31.89%
Required but do not afford/avail	26.16%	19.82%	45.97%
By bus	13.47%	6.50%	19.97%
By train and without ticket	1.39%	0.00%	1.39%
By train and with ticket	0.77%	0.00%	0.77%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table-19: Distribution of the Child Labourers According to the Part of Earning spend in transport to the workplace

PART OF THE EARNING SPEND	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
None	37.31%	40.56%	77.87%
Less than 10 per cent	10.22%	4.49%	14.70%
10 per cent to 25 per cent	4.49%	1.24%	5.73%
More than 25 per cent	0.93%	0.77%	1.70%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table 20: Distribution of the Child Labourers according to the time spend to travel to the workplace

TIME SPEND TO REACH THE WORK PLACE	CHILD LABOURERS		
	MALE	FEMALE	TOTAL
None or nominal	9.44%	16.25%	25.70%
Less than 30 Mins	30.65%	24.92%	55.57%
30 mins to less than one hour	12.07%	5.57%	17.65%
More than one hour	0.77%	0.31%	1.08%
All	52.94%	47.06%	100.00%
No. of child labourer	342	304	646

Table 21: Distribution of Child Labourers According to the Facilities Available at the workplaces

FACILITIES AVAILABLE		CHILD LABOURERS
Hazard prevention measures	Adequate	0.00%
	Inadequate	8.51%
	Absent	14.86%
	Not Required	76.63%
Self protection measures	Adequate	0.00%
	Inadequate	2.01%
	Absent	21.36%
	Not required	76.63%
First aid facilities	Adequate	0.00%
	Inadequate	8.82%
	Absent	91.18%
	Not Required	0.00%
Toilet facilities	Adequate	0.00%
	Inadequate	34.83%
	Absent	65.17%
	Not Required	0.00%
No. of child labourer		646 (100.00%)

Table 22: Distribution of the Child Labourers According to the Incidence of accidents in working life

NO. OF ACCIDENTS HAPPENED IN THE WORKING LIFE	CHILD LABOURERS
Never	18.57%
Only once	27.71%
Two to five times	44.27%
More than five times	9.44%
All	100.00%
No. child labourer	646

Table 23: Distribution of the wage-earning child Labourers according to the Number of employees present in the working unit

NUMBER OF EMPLOYEES PRESENT IN THE WORKING UNIT	WAGE EARNING CHILD LABOURERS
Less than five	36.35%
Five to ten	51.65%
More than Ten	12.00%
All wage earning child labourers	100.00%
No. of wage earning child labourer	575

Table 24: Distribution of the wage-earning child labourers according to the recipients of the wage

RECIPIENT OF THE WAGE	WAGE EARNING CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Self	31.40%	14.61%	46.09%
Father	11.65%	8.87%	20.52%
Mother	1.39%	3.65%	5.04%
Other elder member of the family	7.30%	14.78%	22.08%
Others	4.00%	2.26%	6.26%
All	55.83%	44.17%	100.00%
No. wage earning child labourer	321	274	575

Table 25: Distribution of the wage-earning child labourers according to the type of the fellow employees' behaviour in the workplace

TYPE OF BEHAVIOUR	WAGE EARNING CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Frequently harsh	14.61%	8.35%	22.96%
Occasionally harsh	39.30%	33.74%	73.04%
Not harsh	1.91%	2.09%	4.00%
All	55.83%	44.17%	100.00%
No. of wage earning child labourer	321	254	575

Table 26: Distribution of the wage-earning child labourers according to the type of employer's Behaviour in the workplace

TYPE OF BEHAVIOUR	WAGE EARNING CHILD LABOURERS		
	MALE	FEMALE	TOTAL
Frequently harsh	14.61%	8.35%	22.96%
Occasionally harsh	39.30%	33.74%	73.04%
Not Harsh	1.91%	2.09%	4.00%
All	55.83%	44.17%	100.00%
No. of wage earning child labourer	321	254	575

Table-27: Distribution of the Child Labourers According to the mode of receiving wage or income

MODE OF RECEIVING WAGE/INCOME	CHILD LABOURERS
Daily	26.93%
Weekly	54.02%
Monthly	7.12%
Not applicable	11.92%
All	100.00%
No. of child Labourer	646

Table 28: Distribution of the child labourers according to the presence or absence of family

PRESENCE OR ABSENCE OF FAMILY	CHILD LABOURERS
Present	100.00%
Absent	0.00%
All	100.00%
No. of child labourer	646

Table 29: Distribution of the child labourers according to the contribution of his/her income to the household

PART OF HIS/HER CONTRIBUTION TO HOUSEHOLD	CHILD LABOURERS
None	4.80%
Less than ten per cent of the earning	18.42%
Ten to fifty per cent of the earning	11.30%
More than fifty per cent of the earning	65.48%
Total	100.00%
No. of child labourer	646

Table 30: Distribution of the child labourers according to the level of dependence of the household on his/her income

LEVEL OF DEPENDENCE	CHILD LABOURERS
None	4.80%
Nominal	23.53%
Substantial	71.21%
Complete	0.46%
All	100.00%
No. of child labourer	646

Table 31 : Distribution of the child labourers according to the level of his/her own spending from his/her earning

LEVEL OF OWN SPENDING FROM HIS/HER EARNING	CHILD LABOURERS
Less than ten per cent of earning	60.53%
Ten per cent to fifty per cent of earning	15.01%
More than fifty per cent of earning	19.66%
entire earning	4.80%
All	100.00%
No. of child labourer	646

Table 32: distribution of the child labourers according to the frequency of leaving job

NUMBER OF TIMES OF LEAVING JOB	CHILD LABOURERS
Never	44.89%
Once	34.52%
Two to five times	14.09%
More than five times	6.50%
All	100.00%
No. of child labourer	646

Table 33: Distribution of the child labourers according to the reason for leaving job

REASON FOR LEAVING JOB	CHILD LABOURERS
Never left the job since his/her absorption	44.89%
Very Low pay	13.78%
Intolerable working condition	14.86%
Accident-Prone job	11.30%
Learning a skilled and more lucrative job	3.10%
Fired/terminated	8.20%
Too Much distance to the work place	2.63%
Other reasons*	1.24%
All	100.00%
No. of Child Labourer	646

THE COGNITION OF TIME AND SPACE IN A TRANSHUMANT COMMUNITY: A CASE OF THE GUJARS OF HIMACHAL PRADESH.

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Key Words: Cognition, Gujar, Himachal Pradesh, Space, Time and Transhumance.

Abstract: The conceptualization of time and space has special significance in the life of a transhumant community like Gujar, certain sections of whom migrate seasonally, between high altitude and low plains in Northern India. The Gujar is known to be a transhumant buffalo herding community, whose recurring movement happens in accordance with their cognition of time and space. Their cognition of time and space not only helps the identification of encampment areas en route but also the management of their most valuable possession of Buffaloes through proper utilization of pasture (*bugyals*). The Gujar is used to recognize time through the spatial change of sun, moon and stars as well as the changes in the local ecosystem. The present paper provides a brief account of time-space cognition and its relation with the major ecological and socioeconomic happenings of the region involved in the process of Gujar transhumance. The correlation of time and space with resource utilization as a part of transhumance strategy of the Gujar of Himachal Pradesh has also been discussed here.

Anthropological interest in transhumant communities is quite old. Transhumance is the regular movement of herds between fixed points to exploit seasonal availability of pastures. In the Himalayan region, the practice of transhumant pastoralism involves cyclical movement of herds between highlands and lowlands to take the full advantage of seasonally available pastures at different elevation in the Himalayas (Bhasin 1996). There are different types of transhumance based on different pastoral species and herd management system that co-exist in the Himachal Pradesh. The transhumant pastoralism in Himachal Pradesh is predominantly characterized by sheep and goat rearing except the Gujar who practice buffalo herding. The unique life-ways of the Gujar need ethno-scientific exploration because their specialized economies are embedded in their cognitive perception of time and space. Like all those whose livelihood depends on the vagaries of harsh environment, the Gujar are keen observers of nature. They observe changes in their world (both ecological and astrological) and correlate the more important ones of those that recur with the seasonal migration and daily activities. The Gujar strategies of resource utilization, which demand periodic and regularized spatial movement is inextricably bound together with their cognition of time and space. Traditionally, the Gujar understands different elements of their universe are interlinked and interdependent. The forces of nature will provide all the essentials of life- light, food, shelter, good health, social harmony etc. To understand the experience of time and space of a transhumant buffalo herding community, like that of the Gujar, means to explore their worldview. We must, however keep

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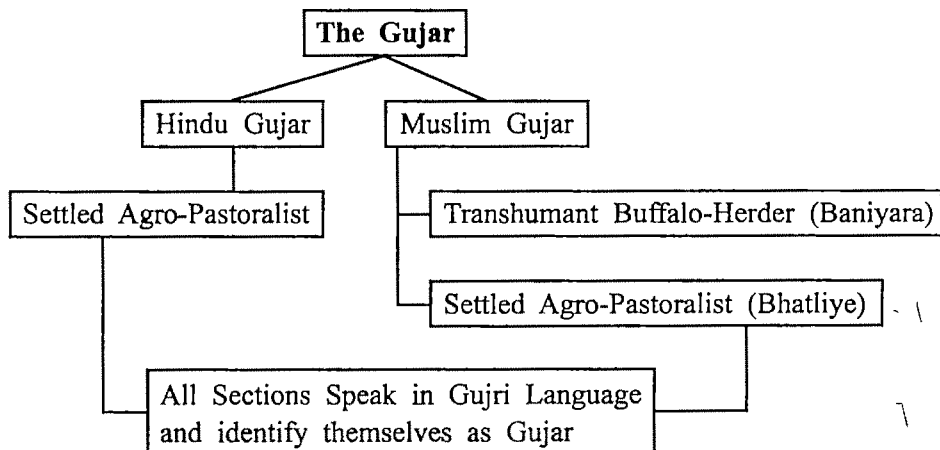
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in mind that in the face of modernization there is an all over change in the world-view and lifestyle of the indigenous community including that of the Gujar. This article is an effort to emphasize the rapidly eluding past rather than a present day dominant reality.

THE GUJAR:

The Gujar group is described in several articles as the India's largest Pastoral community who practice vertical transhumance. (Bhardwaj 1994; Negi 1982; Tambs-hyche 1997; Verma 2004) They are mostly confined to the states of Jammu and Kashmir, Himachal Pradesh and the newly created state of Uttaranchal. The term Gujar is said to be derived from the Sanskrit term 'Gurjara' which first come about in the Sanskrit literature *Sriharshacharita*. History suggests that the Gujar was once a dominant group in western India. It has still remained a matter of debate whether they named the territory of 'Gujarat' on the basis of their attachment with the land or derived their own name from the territory itself. As one of the most interesting community with distinct way of life, the people almost remain unreported in literature. The argument regarding the origin of the Gujar is still shrouded in mystery. Certain sections of the community believe that the Gujar came into India together with the *Hunas* during 5th or 6th century A.D. from central Asia while others try to prove that they are of Indian origin (Negi 1982). It is not very important here to resolve the controversy regarding the origin of the Gujar. What is significant and noteworthy is that according to both views the Gujar are pastoralists. The Gujar of Himachal Pradesh can be classified on the basis of religious affiliation and economic specialization. In Himachal Pradesh the Hindu Gujar, are settled in a village and practice agro-pastoralism whereas Muslim Bhatliye Gujar are transhumant buffalo-herder. Thus, it is clear from the above categorization that the present study is focused on the cognitive aspects of the Muslim Gujar only. Following Grierson (1906) the language of the Gujar may be classed under 'Pahari' languages and 'Gujuri' in central group of the Indo-Aryan language families. The Muslim Gujar speak in Gujar language with some local variations caused by different regional influences.

Classification of the Gujar of Himachal Pradesh



STUDY AREA:

The study is based on the Bhatliye section of the Gujar i.e the settled agro-pastoralist living in the Maingal village, which comes under the jurisdiction of Sillaghrat gram panchayat of Chamba. District of Himachal Pradesh. Maingal is a multi-ethnic small hilly village consisting of about 31 households out of which 25 households belongs to the *Bhatliye* Gujar. The other ethnic groups are Brahmins (3 households), Lohar (2 households) and the Rajput (1 household). The village is about 24 kms from Chamba, the district headquarter that can be approached upto 18 Kms by a jeep and the remaining journey can be covered on dusty bridal path with a gradual ascent right upto the village. The village is composed of eleven small hamlets namely Bhalala, Bhooloo, Galoo, Ganders, Kayada, Maingal, Malog, Manaita, Manait, Ragnal, Dapayatha-Got and Tritha. Only the Maingal has the highest concentration of six houses and the rest having two or three houses each. The area within the village boundaries is known as Maingal *Mohal*. The reasons for selecting this village includes the numerical dominance of the Gujar, communicability and the retention of their original tradition because of the geographical isolation from the external influences. Their livelihood is entirely synchronized by their conceptualization of time and space for the optimum utilization of *bugyals* (Grazing land) and cultivated resources.

CONCEPTUALIZING TIME:

Conceptualization of time and space plays a determining role for the sustenance of life of the people like the Gujar, who follow the seasonal migration between two distinct eco-zones. The Gujar's rhythm of life is tuned with the physical changes in the local eco-system as well as the movement of the heavenly bodies like sun, moon, stars etc. The correspondence between the sky and the earth is not in appearance but in operation. The sky and the earth together form the cosmic rhythms of life. Most perhaps the Gujar cognition of time and space are determined by this cosmic rhythms

The experience of time amongst the Gujar may roughly be dichotomized into-Ecological time and Astrological time. The ecological time frame is in the form of annual cycle whereas the astrological time is mainly effective in organizing the daily routine. The Gujar year has two major and almost equal divisions, defined by their mobility between two different eco-zones. One, the winter months from mid-September to mid- March, when they inhabit the winter camps in the lower altitude; and the other from mid-March to mid-September, when they migrate to the high altitude *bugyals*. Such dichotomization of season entirely depends on the natural phenomenon such as onset of snowfall in high altitude, depletion of grasses in the *bugyals*, the movement of *vu* (wind), and even the buffaloes became restive, which indicates that the time has come to commence the journey. Time reckoning is important because that is an index to the state of availability of the two main resources for the herd that is pasture and water. The Gujar also claim that their buffaloes are conditioned to the changing weather conditions and therefore when there is a rise of temperature in the lower regions towards the end of the winter, the animals start getting restive (Negi 1982). It is even claim

that, as the animals know the migration routes, some of them may even start to move towards the hills on their own. The Gujar perceive annual time cycle with relation to the changes in the local eco-system as well as the behavioral changes of the herds whereas the daily time cycle is guided by the astrological events. The twenty-four hours of the day are reckoned in four divisions. The Gujar day begins at dawn, when the *loi tara* (morning star) is positioned above the *dera*. The *loi tara* is located next to *girgiti*, a constellation of six stars. By *dhyada chadna* (sunrise) the Gujar household is agog with activity. The animals are given feed and soon are taken to the forest for grazing and feeding on leaves. In *dopahar* (afternoon) the animals are brought back to the *dera* (household) for milking and are then led to nearest water resource and again to the forest. In the *sham* (evening) the animals are brought back and herded into an enclosure for the night.

Correlation of time and space with Gojri Calender

Time (Season)	Space (Encamp ment areas)	Gojri Calender	English Calender
<i>SWA</i> (Summer)	High Altitude	Chaitar Baisakh Jeth Arh Sann Bhado	Mar-Apr Apr-May May-Jun Jun-Jul Jul-Aug Aug-Sep
<i>SYAD</i> (Winter)	Low Altitude	Asu Kaliyado Mangeru Pau Mago Phagun	Sep-Oct Oct-Nov Nov-Dec Dec-Jan Jan-Feb Feb-Mar

In the organization of daily routine, apportioning of time, especially the period between dawn and dusk is very important. The Gujars do not possess "modern" watches and clocks for the guidance of time, but like every pastoral community they have learnt to tell time from natural indicators. Early dawn is signaled by the position of the constellation of stars, *kirgiti* and *loi taro* over the *dera*. The Gujar also recognizes the shrieks of the *ghughu* (owl) indicate the dawn. During the day, between *dhyada chadna* (sunrise) and *dhyada chhipna* (sunset), they divide the time according to the sun's trajectory through early morning, mid morning, noon, afternoon and so forth. The lengthening and shortening of the shadows of trees also indicates the different quarters of the day. Thus the Gujars temporal cycle depends on the careful observation of natural events, which is structured by two intersecting circles namely- Ecological time and Astrological time that may coincide.

INTERPRETING SPACE:

Like time space is of uneven quality, it is diverse and discontinuous (Sontheimer 1996). All spaces are not suitable for encampment; some are more effective than others. The effectiveness of a place depends on its association with green pasturages, water sources, and proximity to the market, quality and quantity of milk produced by their cattle etc. As far as the concept of space is concerned, the Gujar categorize two types of spaces viz. Space for movement and Space for settlement. Even within the space for settlement there are 'Purity space' and 'Protection space' each endowed with efficient quality but functionally different from one another. The Gujar have almost fixed routes of migration from their winter camps to summer camps as also a fixed schedule according to which they move (Sarkar and Sarkar 2000). In due course of migration they always used previously earmarked places for transit camp *en route*. Sometimes they passed through the motorable road along with their herds in the night to avoid traffic and to cover a long distance. So the proper knowledge of space for movement helps them to reach the destination in time. Thus the time and space are inextricably bound together.

The Gujar concept of space for settlement can be defined at various levels begins at the level of living space. The *zhonpri* (heart) followed by the *dera* (homestead), a group of *deras* (*tol*) and the seasonal encampment areas in different zones. In Himachal Pradesh the winter encampment area, the Gujar *deras* are semi-permanent in nature. Gujar *deras* are invariably located at the perennial water holes on the hill slopes or at the seepage springs along the courses of small streams or rivulets. Such locations although they facilitate the availability of water for humans and for watering and laving the animals. The Gujar cognized their *dera* (homestead) as 'protection space' because it protects them and their herd from wild elephants and other predators. *Nikkichhan* is another example of protection space as it protects the calves from the rain and other climatic disaster. *Baithak* is considered by the Gujar as 'purity space'. This is a small structure than the *zhonpri* but similar in shape. The walls of the *baithak* do not reach upto the roof and are only about 5ft – 6ft high. The *baithak* is used to receive guest and also for socio religious occasions. In the high altitude pastures the Gujar homestead has only two compartments, the *zhonpri* for humans and the *Nikkichhan* for calves. It is worth mentioning that the concept of purity space exists only when the Gujar is in their permanent *dera*.

TIME, SPACE AND LIFE SUPPORT STRATEGY:

The subsistence pattern of the Gujar is characterized nearly by total dependence on buffaloes and their seasonal movement between high altitudes and relatively low altitude that is technically called 'Transhumance'. Transhumance has been defined by Charles Winnick (1958) as "seasonal movements of domestic animals from one area to another in which different climatic condition prevails. This usually refers to mountainous regions, where such climatic differences in fairly small area are common. Transhumance means also a kind of nomadism in which villages migrate annually with the herds to upland pastures during the summer months."

As it is already mentioned that the *Bhatliyes* livelihood mainly depends on buffalo pastoralism, which demands extensive utilization of highland pastures to graze their buffalos. The studied village Moingal is actually a summer camp for the *bhatliyes*, where every family possesses a certain amount of cultivable land. It is interesting to note that the *bhatliyes* have struck a fine balance between their agricultural operation and pastoral compulsions of grazing their herds through intelligent allocation of time and manpower available with concerned families (Das 2000:58). The cycle of *bhatliye* migrations both upward and downward shows distinct regularity of time and routes. Even, the timing of their migrations is finely synchronized with the major ecological and socio-economic happenings of the regions involved in the process. The melting away of snow and appearance of verdant pastures in high Himalayas initiate their upper migration in the permanent summer camps in early May. For about four months starting in May-June that is after sowing of maize, till September-October, that is when maize is ready to harvest, usually one male member from each family stays at its *dhar* (traditional pasture) to graze their buffaloes. Generally the *dhar* used by them are not too far from their villages. For instance, the Gujars of *Moingal* village use *chandi dhar*, *chal dhar*, *sakri dhar*, *nadeen dhar* etc. all located within two to three days trekking from their hamlets. By the end of September or early October the buffaloes are driven back to the villages and all the families along with their possession started migration towards winter camps in the lower plains due to onset of winter, which is generally caused by inclement weather in surrounding ridges. The timing of *bhatliyes* downward migration is so skillfully tuned that their arrival in low altitude villages occurs when the harvesting is complete and their buffaloes have enough place to camping on the fields. In fact, the lure of having buffalo dung, valuable manure for agricultural land, free of cost, prompts the farmers to extend free camping ground to the Gujar and their herds. Thus the life support strategy of the Gujar exclusively depends on the proper perception of time and space, which controls their rhythmic life of movement and settlement.

CONCLUSION:

This paper intends to focus on the relevance of conceptualizing time and space among the transhumant community like the Gujar. It is needless to mention that there is an overall change in the lifestyle and worldview of the eco-system people in the face of modification over time. The transhumant Gujars have perceived the changes and would like to readjust the adaptive strategy. As a matter of fact they have started making efforts in that direction. Taking up horticulture, working as agricultural laborer and non-agricultural laborer in their semi-permanent winter encampment areas indicate the steps towards giving up nomadic life. Though the present study is empirically more related to the semi-nomadic section of the Gujars, but it has been admitted by the informants that the traditions and the wealth are considerably higher among the nomadic pastoralists section of the Gujar compared to the other two sections. Therefore, the non-tangible cultural heritage of the Gujars, as documented empirically from one section of the semi-nomadic section of Himachal Pradesh, may need further study of their other sections in order to gain access to the over-all dynamics of adaptive modifications over time.

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COMMUNITY ENVIRONMENT: A STUDY ON ETHNO-SCIENCE

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Abstract : Community can no longer be described in terms of institutions and components, for now it is recognised as symbol to which its various adherents impute their own meanings. The boundary represents the mask presented by the community to the outside world and encapsulates the identity of the community. The manner in which boundaries are marked depending entirely upon the specific community in question. This discourse is a humble effort to understand the concept of environment, classification, categorisation and use pattern of resources of a community, the Santal, within the framework of ethnoscience and ethnoecology. The organising experience of the Santal which they got from interaction with effective environment, can classify and categorize their 'cognitized environment' hierarchically depending on the morphological and functional attributes. Their perception of using resources which is culturally, socially and morally integrated, results in controlled preservation of their effective environment.

Community seems to imply two related suggestions: that the members of a group of people (a) have something in common with each other, which (b) distinguishes them in a significant way from the members of their putative group (Cohen 1985). The element, which embodies this sense of discrimination, is the boundary. Boundaries are marked because communities interact in some way or other with entities from which they are, or wish to be, distinguished (Barth 1969). The manner in which they are marked depends entirely upon the specific community in question. The useful referent of community is that its members believe or make a similar sense, or things either generally or with respect to specific and significant interests. When the inhabitants of a locality talk of their 'community', they refer to an entity, a reality, invested with all the sentiment attached as they involve the social process of everyday life.

In terms of their self-sufficiency communities are classified as independent or dependent. Dependent community have very large population, relatively advanced technology, and a large number of diverse units, which are involved in a network of inter community exchange relations. Unlike this the independent community is highly self sufficient, relatively isolated, small in population, and possesses a simple technology having less differentiation between few units. The Santal community under study exhibits the foregoing features.

The present paper is an endeavour to study the environment, conceived by the members of the Santal community without imposing any *apriori* structure or concept on them to unravel the indigenous concepts and descriptions of the true relationships of native peoples to their environment i.e. cognized environment (Rappaport 1963). The idea of

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this study is to provide a better understanding of how people perceive their resources in environment and how they organize these perceptions to resource utilization. But what Rappaport (1963) calls the "Operational environment", the sum total of all environmental features, whether fully comprehend or not, is not taken into account because ethnoecological approach does not provide a mechanism for handling it (Vyada and Rappaport 1968).

Both the "perceptual" and "effective" environments (Bates 1960) of any human group are relevant to the understanding of its behaviour and ecology. This study does not account for the complex interactional nature of ecological relationships. The consequences for other aspects of an ecosystem of cognitive and behavioural regularities have not been considered. The ecology of the tribal community (the Santal) in question is taken into a very broader sense. It is an effort to point out the relations obtaining between the members of the community and their environment. It is important to note that the relations a society entertains with its environment are not always adaptive responses but a kind of creativity. It hints at the contribution to an ecological approach in broad sense some sort of creativity. In showing creativity, each culture brings to its manner of socializing nature (Descola 1994).

The general belief that the rural folk (mainly the tribal communities) of India are not conscious about the environmental destruction and threatening effect of it. On the contrary, the tradition, custom and ways of living of the Santal *Per se* are not contraindicative to environmental destruction. The programmes of the government and the voluntary organizations for improving the situation of environmental degradation did not offer appreciable result. It was mainly because, it lacked the consideration of the environmental concept of the people in question, their cultural practices and their needs which retarded the successful implementation. In the changing situation arising out of impact of urbanisation and industrialization whether their cultural practices are more conducive to environmental preservation or degradation which causing less progress, was a serious research question. 'Community Environment' meaning here the environment perceived by the community (Santal) in and around them was absolutely necessary. In understanding the Santal way of recognising the 'perceptual' and 'effective' (Bates 1953) environment ethnoecology as a method and orientation to study of ecology had been followed. It is the inclusive field of ethnosience. It refers to study from ethnic group's point of view their conception of nature of ecology (environment) around them. The pattern of the utilisation of resources (natural) of the Santal available or perceptible to the environment of the Santal was graspable in terms of preservative and degrading values and norms.

Mainly four domains of resources are considered in this study, viz. land, animal, plant and water. The thrust of the study gradually moves from the conceptualisation of ethnoecology or ethnosience in order to know how the Santal feel to live a life centering round the natural

system? The organising experience of the Santal which they got in course of their interaction with the environment can classify and categorise the natural system i.e. 'Cognitized environment' hierarchically, depending on the morphological attributes and functional configuration.

The researcher strictly confined his work among the Santal of Kalaboni, Chechergarih, Piyalgarih and Basantapur villages of Jhargram Block of west Midnapore district in the State of West Bengal, India. Jhargram is one of the densely tribal populated block in the district. These four villages are located around Jhargram railway stations. The villages were studied to verify the consistency of data spatially. The tribal community of Santal was selected because they had a large homogenous population with settled agriculture as occupation as well as exposed to nearby hill and forests. Impact of urbanization and industrialization was also discernible. Moreover the communication skill of the Santal, their awareness about themselves and environment were noteworthy.

The study of the perceptual and effective environment of the Santal reveals that the *Pitthimi* (Earth) consisted of five classes of things, such as - *Daare* (Plant), *Dhiri* (Stone), *Dah* (Water), *Janjanwar* (Creature) and *Nehorko* (People). These five things are broadly differentiated into two categories - *jibit menah* (having life) and *jibit banuonah* (no life). Then with the help of exhaustive question frame the classification of the domains of plant, land, water and animal was arrived at. It was interesting to note that the *Nehorko* (People) was categorised into two types : *Hor* (The Santal) and *Diku* (Non-tribal). The Santal wisdom on the basis of morphological and behavioural considerations brilliantly made the taxonomy of the natural categories. The main thrust of the taxonomy was to understand how the category Earth was divided into subcategories. Each subcategory is further classified hierarchically, for instance- *Dhiri* (Non transformed stone) was further classified as *Buru* (Hill), *Dhiridungri* (Fallow land), *Baidh* (Cultivable land) and *Hasa* (Soil). Then again *Buru* was identified in different names on the basis of growth of vegetation, such as - *Gulpidi* (Hillock) where no vegetation was found and *Rohod Buru* where water source is scanty. The land was the major resource for their livelihood. Thus the first categorization took place on the basis of morphological and behavioural data. (Fig. 1)

Land was denoted by several terms : *Dhiri Dungri* and *Baidh* were referred to categorize fallow land and agricultural land respectively. The land is also classified in terms of contrasting features *Chetam* (high) and *Namo* (low) levels and also in terms of fertility. Terminologically distinguishable four types of land and three types of ecological field zones were found. The organizing experience of the Santal expressed the quality of land in terms of fertility of the soil condition which were measured by amount of crop yielded per bigha and water retentivity of the soil. It was possible through eliciting procedure to get a paradigm of land types and crop varieties (Fig. 2a,b).

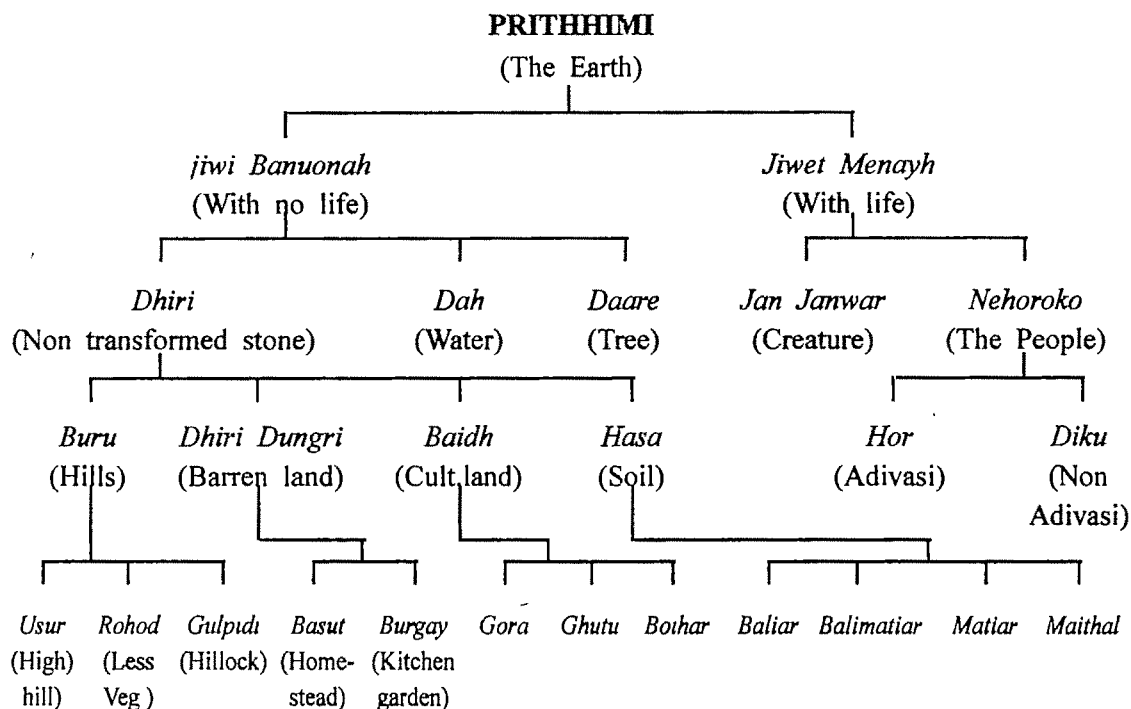


Fig. 1 : A Taxonomy of Santal Natural Category

The Santal viewed two dimension: level (High versus low) and fertility (Fertile versus non-fertile). Each land type constituted by hasa (Soil). The Santal distinguished various types of soil on the basis of colour, texture. Each soil type had specific use according to their cultural values. The perception of the effective environment of the Santal depended mainly on technological development and experience. This was reflected from the mode of land use (Fig 3). The principal use of land was reflected from their expression “We till lands for crops”.

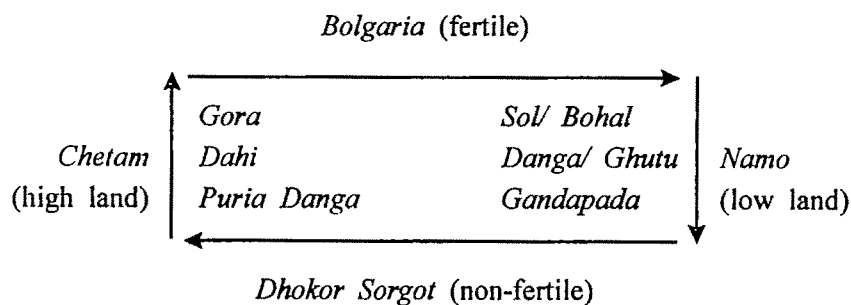
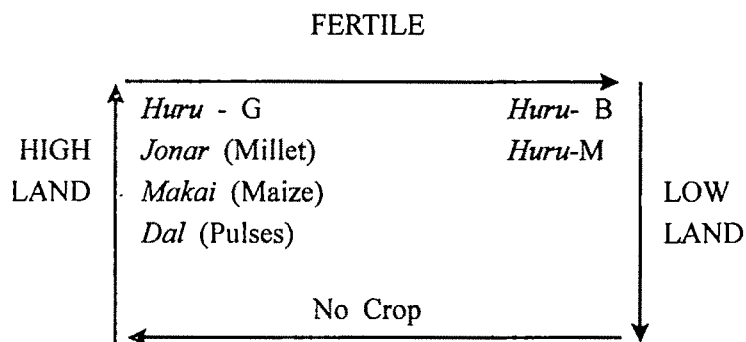


Fig. 2a Paradigm of Land Types



Huru- G = *Aush, Gundhli, Kaichi, Goradhan*

Huru- M = *Lalat, Swarna, Pankaj, Aiya36, Kaltur* - (new variety)
Jhula, Sojormoni, Kakri, Noichi, Bhutmuri – (old variety)

Huru- B = *Janglijata, Kabirajsal, Sital, Banspati, Jangalsal, Chandrakanta etc.*- (old)
Lalswarna, 1006, 1009 – (New variety)

Fig.- 2b Paradigm of Crops and Land Types

In order to get the Santal knowledge of plant domain and to understand the differentiating features of the polymorphic term Daare, extensive eliciting questionnaire was used. The figure (Fig. 4) on the taxonomy of trees, expressed various intriguing features. Thus Daare was classed at first stage into “with branch” and “without branch”. In the second stage the Santal pointed out into sizes of the two categories: Marang (Large) and Hudung (Small). In the third stage into the Pherat (Thickness) and in the fourth stage Biseh (toxic) and jomah (non-toxic edible) varieties. The flower is a very adorning object to the Santal. So in the fifth stage they classify the Daare into flowering and fruit bearing trees respectively. The Santal also could distinguish a limited number of aquatic plants and categorised them into floating and sub-merged varieties.

There are different semantic features by which Santal categorized the plant into Daare (Trees with solid and erect stem), Naade (Plants with rope like stem), Budhoe (Bushes of Herbs and Shrubs) and Ghaas (Grasses of different types).

The patterns of use of different categories of plant exhibited mixed hierarchic character manifest into edibility and tastes, decoration, animal fodder, medicinal, fencing, shades and wind providing.

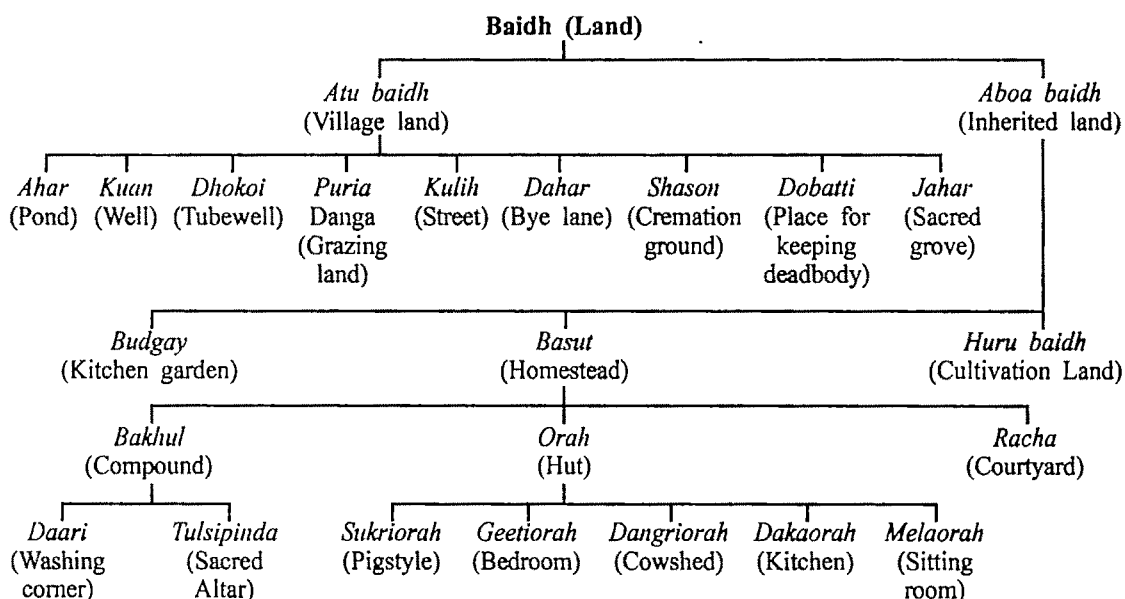


Fig.- 3 Classification of Land According to Use Pattern

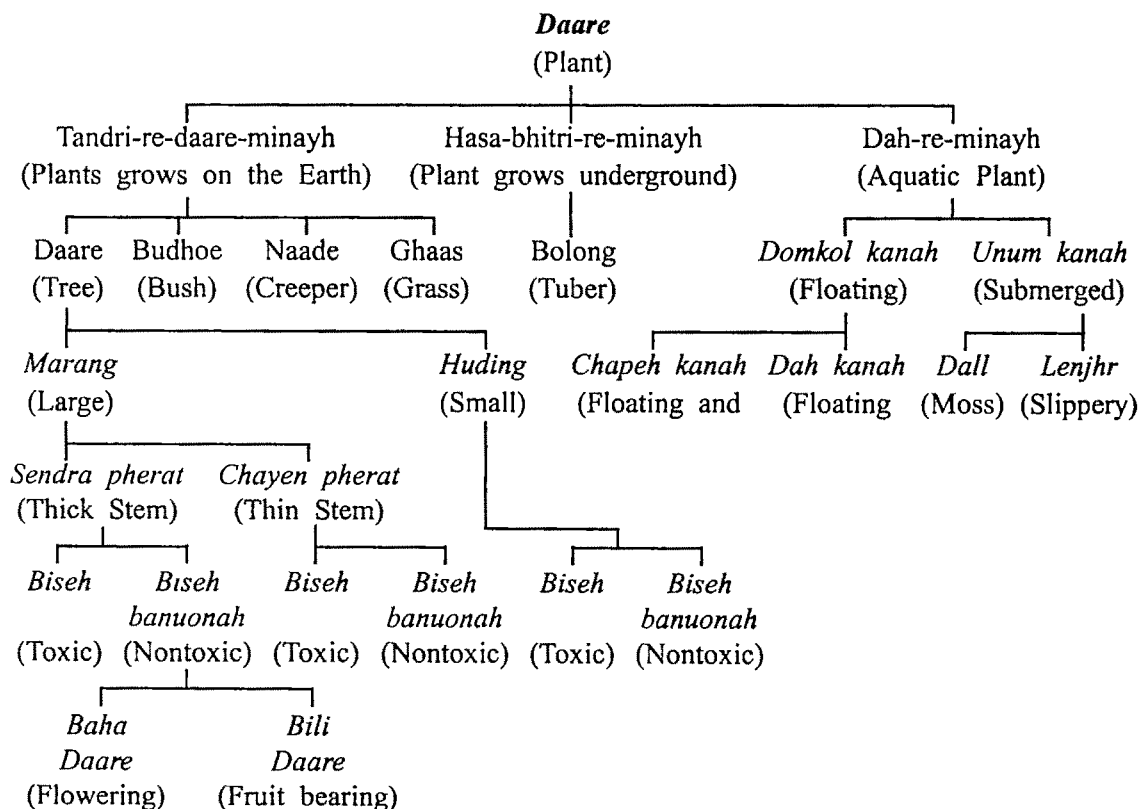


Fig.- 4 Taxonomy of Daare (Tree).

In an effort to understand the boundaries and contents of semantic domain of animals, morphological features were identified through contrasting sets of responses along with habitat and locomotion. In doing so they identified five life-forms - Janwar (Animal), Tiju (Insects), Cheede (Birds), Bing (Snake) and Haku (Fish). In reality, they started to distinguish animals into Asul (domesticated) and Beer (non-domesticated or jungle) types. Many of the creatures were unclassified beyond these life-forms. The detailed study within the limit of researchers' understanding of the Santal organising experience was presented in Fig.- 5.

To understand how the people relate categories to behaviour, it is found that pattern of use of animals show mixed hierarchic characters. These characters are edibility, economic consideration, medicinal, recreational and pet.

The people expressed that they live on cultivation but this area lacked irrigation facility. Therefore, the cultivation was totally rain-fed. Naturally it was bewildering topic to get a comprehensive categorization of the water resources. But it was a fact that the wisdom of the Santal on water resources was adequate. They hinted at the origin/source of water, such as Chuyeh (underground) and Bahi (flowing above the ground) (Fig. 6). The underground water sources include dug out Kuan (Well), Dhokoi (Tubewell) and Balikuan (Water hole in the river bank). The second source of water was the stagnant water after rain Sermadah (Rain water) which are found in Sendra ahar (Large pond), Ahar (Pond) and Badridah (Logged water in paddy field). The third source of water which comes from Budu (Hills) is Bahi (flowing) that includes Gandra (river). However they have effective choice of water in using for specific purposes according to their traditions. Figure- 7 represents the detail consideration about water resources and use pattern.

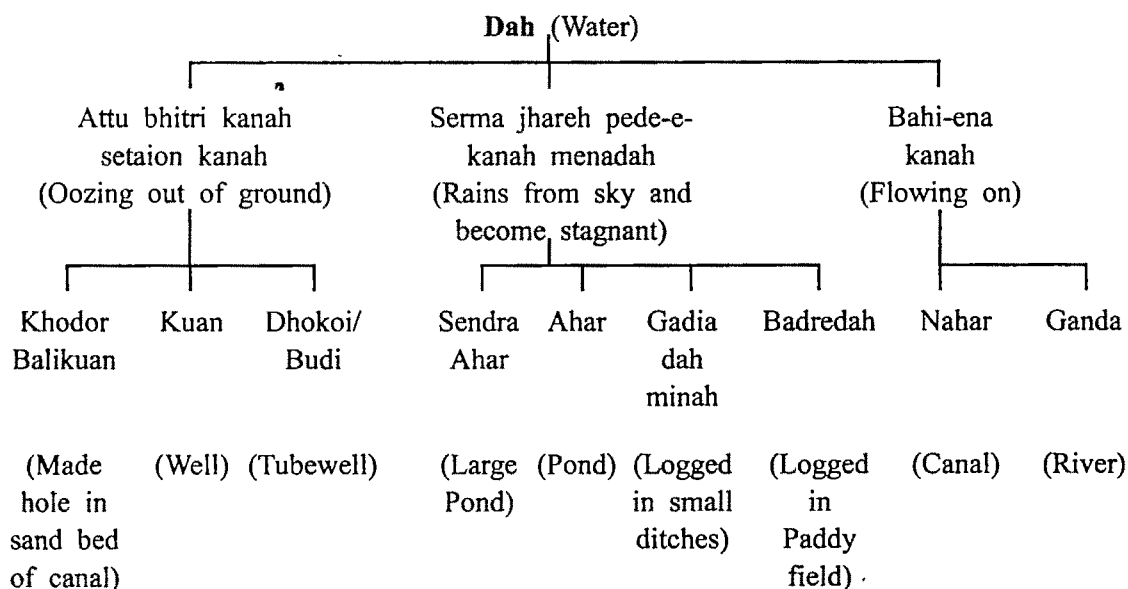


Fig.- 6 : Taxonomy of Water Resources

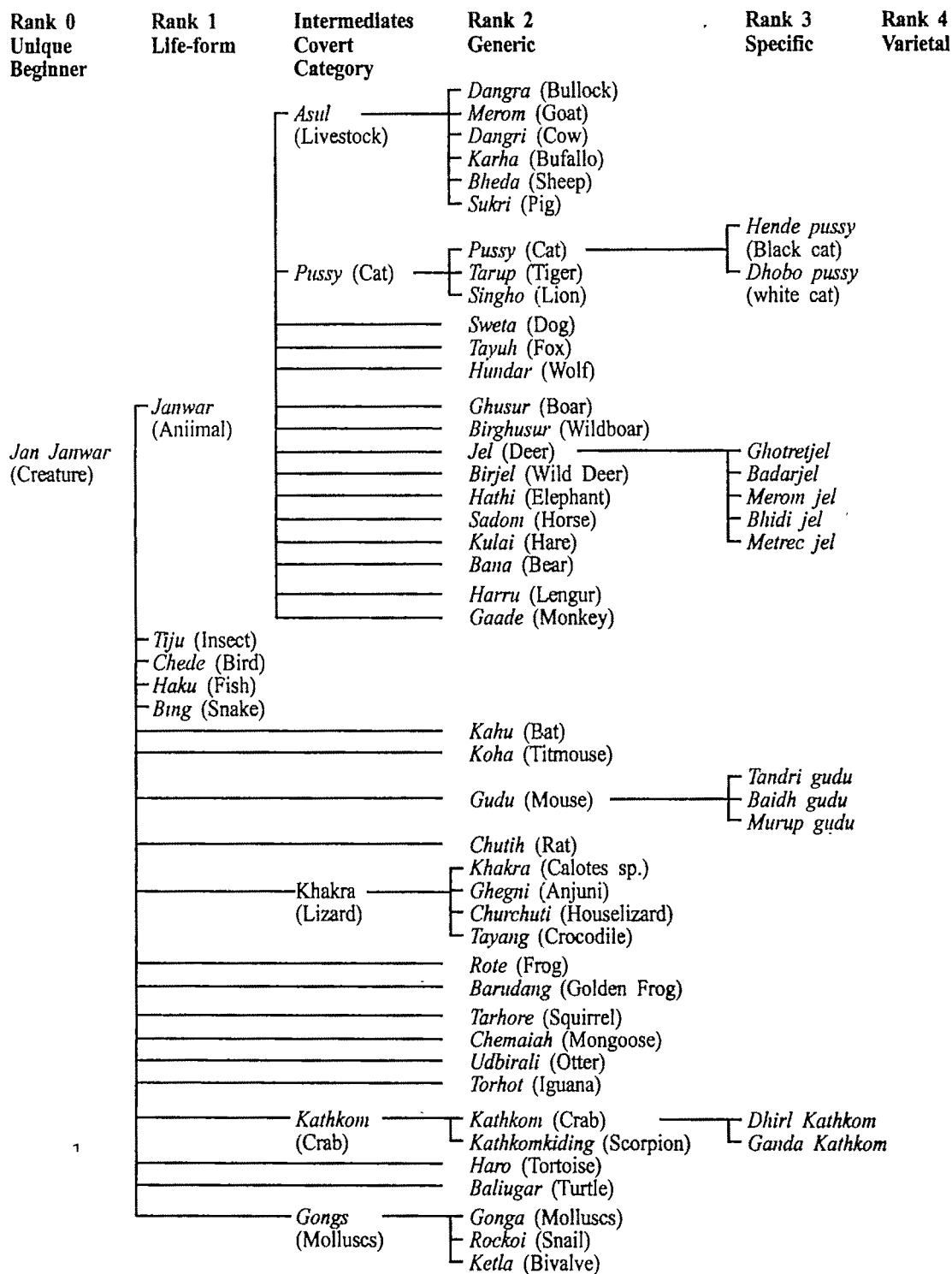


Fig.- 5 Partial Taxonomy of Jan janwar (Creature).

In an attempt to define and classify the Santal cognitized environment it is found that people name and classify those objects from their effective environment with which they are in direct contact in terms of use and acquaintance with a few from their perception. They had a very faint concept about total reality though they lived near the urban centres and are in contact with different groups of people by means of various external links. In many occasions the people in question fail to explain an object, a phenomenon, a classification in one to one relation. They failed to use proper terminology but efficiently made clear to the image of the researcher which he tried to explain in this discourse.

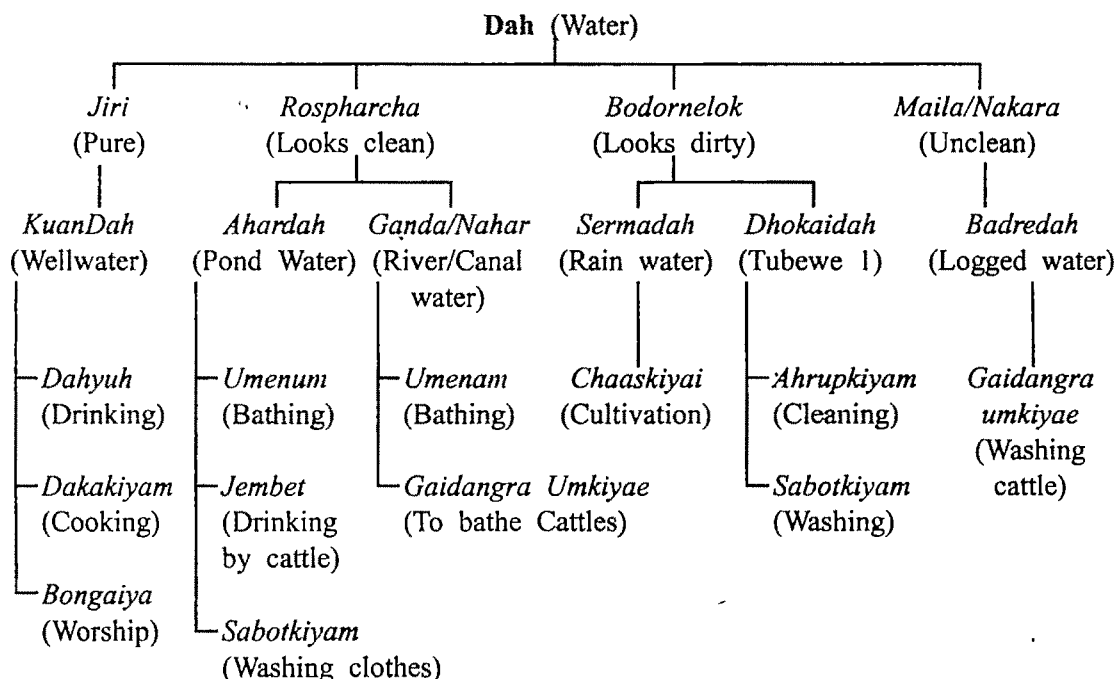


Fig.- 7: Tree Diagram on Use of Water

Thus from above classification it was found that in folk taxonomies there were cognitive differences between different hierarchical levels. Upper level terms such as the life forms and intermediates are typically composed of a relatively small number of features, often relatively formal and schematic in character. This was an efficient means to make broad distinctions in a world which was structured into broad and distinct kinds of things by simplification in reduction of the number of attributes. Taxonomic generics on the other hand, were composed of a large number of attributes formed or 'chunked' in configurational gestalt. These are what Rosch (1978) calls "basic level objects". These attributes were at least partially correlated with each other. Though many objects did not fit the attribute patterns perfectly. The basic level objects which had the greatest number of attributes shared by other members of the same superordinate category were considered as the best examples of that category and included for cognitive representation of that category.

Thus from taxonomic classification it was evident that-

- (1) The criteria of decision making of these people to put an object in a category were complex and mixed.
- (2) Some times the attributes of the basic level objects were morphologically salient features, sometimes they were features which became salient because of the way these people interact with these objects.
- (3) Sometimes these features became salient only because of cultural meaning which were imposed on these objects.

The Santal have a remarkable ability to treat events and relations as if they were objects. Cultural systems of meaning, build on and enhance this human ability (D'Andrade, 1995).

Further the researcher encountered number of discrepancies in discovering the patterns of attributes:

- (1) Use of primary or secondary lexemes were common but the Santal sometimes use descriptive narrations for putting the object to a particular category.
- (2) They can perceive certain objects with distinctive features but cannot find any specific term in their terminology for labelling it and to segregate the negative attributes. This leximic gaps caused a minor limitation to grasp the hierarchical classification of the Santal.
- (3) It was painstaking endeavour in the part of the researchers at the time of collecting Santali term from mixture of Bengali or Hindi.

The cognition of environment of these people and the resources (land, plant, animal and water) under study was superb. This cognition, too helped in understanding the use pattern of resources leading to preservative or degrading trends.

The use pattern of resources manifests some interesting Santal concept of useful exploitation and preservation of effective environment.

- (1) The people have restricted their homestead in high infertile lands, leaving low lands for cultivation to have maximum use of rain water, in their own technique. Because rainwater is the only source of water for cultivation, in these region.
- (2) The people dig out infertile lands adjacent to their habitable area for building and repairing their huts. Ultimately within two or three years these lands transformed into low cultivable land.
- (3) The people use mainly natural manure of cowdung with restricted use of chemical fertilizers to preserve the fertility of the lands for stable production of paddy, which provides their sustenance. So, they are aware of conserving the fertility of soil.
- (4) The people try to protect the well and dug out holes in the sandy river bed called Balikuan, the water of which they think as pure for drinking. Though tubewells are there, they use water of well for drinking, cooking, and worship. This is due to their habits and cultural values. They try to avoid use of river water for above purposes

except bathing because they think the water is polluted by washed out effluents. It reflects their awareness in using the available limited water sources.

- (5) For firewood and timber, people try to collect it from hilly jungle instead of cutting big trees of villages, excepting in dire necessity. The people claim that they cut only the branches of big trees from jungle for firewood, so that it can grow further, for which the people blame them of. In fact it was found that people cut only the branches of big trees in the village for its reuse when new branches come out. It is related to their traditional practice of cooking with fire of wood. They are well aware of importance of big trees. The people never destroy trees or plants sacred to them or have medicinal values. They try to preserve the big Sarjom and Matkom trees of the Jaharthan, the sacred grove where religious festivals of the villagers take place. In case of falling of big trees of this place they use those woods for cooking in communal feasts. The villages are found to lie under foliage of green trees in contrast to vast barren areas where vegetation is scanty and were deforested for settlement of Cement factory or houses.
- (6) The people try to preserve the seeds of traditional paddy varieties and plants, which they cultivate from their annual yield.
- (7) The people preserve some species of animals as live stocks and pet according to their means. And in fact a large number of live stocks were found in every Santal household. It is essential for their Bapla ganam (bride price), for sacrifice in Parab (festivals), feasts and Ganam (fines) on trial by village council. The animals, which are sacred according to their Parish (clan), are not killed or used. It ultimately helps to grow that particular species of animal in that eco-niche. They go for hunting once in a year in the month of Chait (March-April). They are aware that killing of animals is degrading to nature, but it is their traditional rule. Thus their customs and rituals have restricted the killing of animals into limited number of days and insisted them to preserve those species. Excepting self-protection they seldom kill any type of animal. The people realized that many species of plants and animals, which were once abundant in the region, have become extinct.

Thus from the study it is prominent that the perception of the people of these four villages about the environment are mostly limited to their effective environment and they are aware of it. They are using resources of the environment, at the same time trying to preserve their effective environment in some way or other specified by their traditional cultural values and norms when exposed to the urban centers. In the present condition they are trying to keep pace with the new changing situation and trying to imitate to be considered as developed like the urban people in every sphere of life but not at the expense of their cultural traditions and values.

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A STUDY OF THE CULT OF BANABIBI

Partha Chakrabarti

The study of forest cult is very important in the perspective of the Sunderban area of South 24 Parganas. The forest cult is associated with the deities like Banabibi, Narayani, Barkhan Gaji, Dakshin Ray, Kalu Ray, Aateshwar etc. The cult possesses rich verbal traditions and complex myth-ritual structure. The study of forest cult explores a new horizon of study – the relationship between human and animal kingdom. The study focuses on the subject of Man-God relationship.

I

Banabibi is worshipped as a forest deity in lower Bengal particularly in adjacent regions of Sunderban. The deity is also associated with tiger cult. The southern region of undivided Bengal is considered to be the region of worship of Banabibi. In West Bengal, the police stations like Gosaba, Basanti, Minakhan, Sandeshkhali, Basirhat, Hingalganj, Haroa, Hasanabad, Kakdwip, Diamond Harbour, Canning where Banabibi is worshipped by the common folk of the village.

Generally, the forest – goers or ballak worship in the thans of Banabibi when they enter into the forest or return from the forest through out the year. The moulay (skilled honey collector) and Bautay, fishermen, boat-men and different castes of lower strata of caste – system like Bagdi, Keoda, Keot, Hadi etc. and the people from Muslim community collectively join and participate in the worship of Banabibi.

II

The shrines or thans of Banabibi are located in the midst of the forest by the side of the river, canals, tanks or ponds. The shrines are made of the bamboo poles and hogla leaves (a species of aquatic plants). During annual worship of the deity, the shrines are decorated with leaves and flowers. After the completion of the ceremony the shrines are left unused. In a relatively developed village, the than of Banabibi is made of bamboo thatched with straw, tin or asbestos. These shrines are permanent ones.

In the shrines adjacent to the forest, Banabibi is, consecrated. But in fringe villages Banabibi resides in the shrine together with other folk deities viz. Aateshwar, Narayani, Shitala, Shajangli, Narayani and Dakshin Ray. In this context shrines may be classified into followings categories : - (a) forest shrines with adhoc construction; (b) shrines with adhoc construction on the selected spot in fringe villages; (c) Pakka or permanent shrines on selected spot in fringe villages.

III

Symbol or icon of the deity :

The deity Banabibi is manifested in iconic figure or in the symbol of earthen pitcher or mound

of earth. In the spots in 24- Parganas (south) where Banabibi is worshipped by the symbol of earth mound. In the Morog jungle in the Sagar P.S., the annual worship of Banabibi is performed with the representation of earth mound as the symbol of deity. Sometimes, during the worship of the deity, other six earth mounds are also worshipped. The seven mounds are thought to be seven sisters namely Olabibi, Jholabibi, Madi Bibi, Assan Bibi, Banabibi, Jarinabibi and Vassanbibibi. In the adjacent areas of the forest, the earthen pitchers are also placed on the mound. The pitchers are decorated with the paintings of creepers, leaves, flowers etc. The earthen pitchers are worshipped. In the fringe villages adjacent to the urban area, the deity is worshipped in her iconic forms. The author has observe the icons of Banabibi in Ramanagar (Baruipur P.S.), Taldi (Canning P.S.), Amjara (Basanti P.S.) etc. The look of the deity is not wrathful. The figure is made in the mould of Pauranik deity. The icon-maker of the villages make the image. The variations of the are observed in different regions. The region dominated by muslims, the icon images of Banabibi resembles the young Muslim girl in appearance. The deity holds Aasabadi or Jhanda (a fly whisk) and the deity mounts on earthen cock or earthen tiger. In the regions dominated by Hindu seet, the deity resembles the Gooddessa Durga in dresses and appearance. A figure of young boy is placed in the lap of Banabibi. According to the opinion of the devotees, this figure is of a wood – cutter named Dukhe or Dakshin Ray. In most cases, the deity Banabibi is accompanied by a warrior's iconic figure named Sah Jangli and is identified to be the brother of Banabibi by common devotees.

IV

Descriptive ritual of the deity Banabibi :

There is no definite lunar day (Tithi) in connection with the worship of the deity. During the entry into the forest, the moulay or honey-collectors offer worship to the deity in the month of March-April. Some of the forest-goers worship the deity after the safe-return from the forest. The worship of Banabibi is offered generally in the months of March-April and December-January. Because the said periods are the time for the forest product. At that time the deity is worshipped at any time of the day or night. The members of both the communities Hindu and Muslims offer worship or hajot to the deity. The forest going people like Mouley, Malangi, Shikari, Noujibi, Matsyajibi etc. worship the deity. The Deyasis (Priests from lower castes like Poundra, Kshatriya, Dom etc.) preside over the worship of the deity. In Hindu-dominated area the Deyasis worships the deity and in Muslim dominated area the Fakirs offer hajot to deity. The Fakirs are known as Gunins or Bauleys. The Bauleys are of two types viz. Guner Bauley and Hukumer Bauley respectively. Guner Bauley plays the major role in the worship ceremony of the deity. The Hukumer Bauley is directed by Guner Bauley : The Guner Bauley utters the incantations known as Malabandha, Gandikata, Khilan, Hank Janano, Garbandha, Khaaki Sadhan and perform the rituals connected to the worship of the Banabibi. Besides the utterance of incantations they swear in the names of Musalman Bibi, Pir, Fakir, and different Hinduised deities. In the Darga (Mausoleum) of Banabibi the Hukumer Bauleys prepare the sirni (an oblation of sweets offered to deities). Batasa (sweet cake), Kadma, Patali,

fruits etc. occupy the list of offerings to the deity. The hens are sacrificed to deity. The neck of the offered hen is not cut off by a sharp weapon, the head of the hen is torn off and offered to the deity. After the completion of the ritual the *simi* and the food offered to the deity are distributed to the devotees.

It is mentioned earlier that in the region dominated by Hindu population the deity Banabibi is worshipped by the priests belonging to lower castes. But it is observed that in some *pakka* shrines the daily worship of the deity is carried out by the Brahmin Priest. In *canning* and *Taldi* of South 24-Parganas (West Bengal) the Brahmin priests offer worship to the deity uttering the incantations of the Goddess Durga. Sometimes the priests worship the deity in the meditation of Banachandi, the higher Hindu Goddess. When the Brahmin priests preside over the ceremony of worship the vegetarian dishes are offered to the deity.

The annual worship of Banabibi is performed with pomp and grandeur in the solitary island of Morag jungle (Lat no. 20) on the last Tuesday of the Bengali month Vaisakha (April-May). On that day the annual worship and festival is held. The devotees reach the island playing drum, tom-tom, dish of bell-metal (*kansi*) etc.

Batasa (sugar cake), milk, sweet etc. are offered to the deity. According to the special rite of the worship a pair of hen and cock are offered to the deity and then set free. The observance of this rite may be influenced by the norms of Buddhism. The custom of making the bird free is prevalent in some Hindu pilgrimages of South India. After the completion of the worship and the festival, the devotees leave the island in the evening. The devotees believe that the offered hen and cock are the disciples (*chela*) of Banabibi and the cry of the disciples keep the deity awake and the deity protect her forest goer devotees.

The collection of articles for the worship of the deity and money for the expenditures related to the worship are collected through begging or praying by the Hukumer Bauley. During the collection of money and other necessary requirements for worship the Hukumer Bauleys sing the glory of Banabibi. In the shrines adjacent to the forests the deity is worshipped when the forest goers enter or return from the jores. The worship is not performed on a specific day or on a particular lunar day (*Tithi*). There is no role for the priests. The eldermost person among the forest goers performs the ritual. The deity offered with roots, fruits etc. and the devotees launch a prayer stating the safe return for the forest-goers from the interior of the forest with enormous forest collection. In the shrines adjoining to the forest the annual worship of the deity does not take place. No initiative is observed among the forest goers to maintain the shrines.

In the villages adjacent to the forest belt such as Amjara (P.S. Gosaba), Narayanpur (P.S. Gosaba) the groups like Makal and Jalia Kaivarta comprise the most of the population of the villages. In these villages the annual worship of Banabibi is observed with pomp and grandeur. In most of the cases the Deyasis (priest from the lower caste group like Poundra Kshatriya) conducts the ritual, but the Brahmin priests are also engaged to conduct the ceremony in few cases. The deity Banabibi is worshipped alone or jointly with another mother deity named Narayani. It is mentionworthy that the members of both of the communities,

Hindu and Muslims worship both the deities with devotion and reverence. If Narayani is worshipped by the Brahmin priest, the devotees from Muslim communities show reticence towards the whole ceremony. Although the devotees vow the deity for safe departure from the forest and profuse collection of forest products, they also vow for before relief from diseases, and distress.

In the villages nearer to the urban areas or in semi-urban areas, the deities of higher Hindu scriptural religion are dominant when villages are populated by multi-caste groups. The forest-goers in these villages are lower in number. The importance of Banabibi and other folk deities are less among the people through out the year, excepting the annual Festivals. In these cases the Brahmin Priests conduct the worship; non-vegeterian dishes are offered to the deity and the devotees pray to the deity to get relief from of earthly sorrow and diseases. Generally the festivals are observed on the 1st lunarday of the Bengali month Maagh (January-february). Besides the annual worship the deity Banabibi is worshipped twice a week in respective shrines on Thursday and Saturday.

V

The oral tradition of Banabibi is much prevalent in Folk Society. We can encounter also some scriptural evidences of myths, legends, ballads about Banabibi. The literature about Banabibi are in vogue among the folk people in the form of Panchali (Bengali poem celebrating the glory of a deity). Among these Panchali, Banabibir Jahuranama, Gazi- Kalu-Champabati and Ray-mangal Kavya are worth mentioning. Muni-Bainuddin, an eminent folk-poet composed a poetic episode about Banabibi named 'Bonbibir Jahuranama'. In this poetic episode and in other oral literatures about Banabibi, the war or jang between Banabibi and Narayani has been described. According to the legend prevalent in the folk society, Banabibi and Her brother Shahjangli came to Badaban or aalharo bhanti or Sunderban and tried to conquer the area. They came from faroff Macca by the decree of khoda (God). Banabibi and Shah Jangli had to fight a war with the king of Sunderban, Dakshin Ray and His Mother Narayani. After a prolonged war between them Banabibi defeated Narayani as Banabibi was blessed by Fatema. After being defeated Narayani addressed Banabibi as soi (friend) and Banabibi being pleased with Narayani left some portions of conquered region of aatharo bhati to Narayani-

Banabibi bale sai suno del dia sakole aatharobhatt loiba bathi.' Banabibi said. "oh friend ! listen mindfully that we will divide aatharobhatt between ourselves".

On the day of annual festival of Banabibi the Panchali is sung by the priest. Most of the songs are sung from Banabibir Jahuranama or from Banabibi NatakPata composed by Satish Ch. Chowdhury. In the songs the glory of the deity has been narrated. The songs are locally called Banabibir Keramati.

VI

Apart from generalized ritual performance, there is an important symbolic element of this cult which must be worth mentioning.

When the ballock or forest goers enter the forest they are accompanied by a specialized

person known as bauley or gunin. The gunins are spirit-possessed men who can control the activities of the tiger. It is believed by the common folk that the gunins are able to resist the howling of the tiger and can drive the beasts away from the place where the forest goers are performing their forest activities.

It is believed that Gunins have some verbal repertoires at his control by which that can control the tiger. The Gunins utter a series of incognizable words which are called mantras. This mantra is an aggregate of certain sound unit. Each isolated unit is meaningless. But such isolates are combined together, bear a meaning, at least to the Gunins and the commoners who have faith in the technique of Gunin. The Gunin is the exponent of the expressive action by which the tiger is encountered. With his magical activities the Gunin claims to change the state of the world by driving away the animal with the use of symbolic action which is manifested in the mantras. The procedures of the Gunins are following :

Chalani : By the effect of this performance the tiger will be driven away from the area where the ballock are at work.

Jalani : By this action the tiger will feel burning sensation with itching and as a result it will leave the place.

Khilani : The tiger will not be able to open its mouth cavity, his jaws will be seized with cramps.

The ultimate result of the performance is that the tiger will be inactive for attacking and killing the forest-goers.

VII

The discussion made the folk character of the worship and ceremony related with Banabibi. In spite of that above reveals the worship of Banabibi are being influenced by the higher Hindu religion in the exterior part of the Sunderban region.

Involvement of the lower caste groups of the Hindu Society and the devotees of the Muslim Society in the ceremony reveals the communal harmony at the folk level. In the forest shrines the deity is worshipped by the devotees irrespective of caste and religions groups. But in multi-caste and semiurban villages, the icon of deities are completely different. In the area mostly inhabited by the Hindus the icon resembles the goddess Durga and in the region populated by the Muslims, the icon of the deity is like lady of aristocrat Muslim family. Although in Islam there is a prohibition of the worship of icon yet they worship the iconic figure of Banabibi, this event also suggests the lack of the influence of Islam on the worship of Banabibi in Muslim area.

The folk society is in transition, Gradual influence 'of folk-urban continuum and the impact of heterogeneity of folk-urban continuum and the impact of heterogeneity in economic affairs bring about the change in the folk society. The folk society is not freed from the gradual influence of higher Hinduised culture. Different aspects of folk culture have been influenced by the culture of Great tradition of Hindu civilization. The phenomenon is evidenced by the icon-worship, employment of Brahmin Priest for the worship; recital of sanskrit incantations

etc. The episode is thus losing its importance. The episode bears the influence of politically dominant Islamic culture.

The episode symbolizes the historical fact of the Muslim domination over Hindu population of aatharobhati (Land area of Sunderban). The defeat of Dakshin Ray-Narayani to Banabibi-Shah Jangli and subsequently the unity among them reveals the confluence of Muslims over Hindu population and subsequent unity at Folk level.

The myth of Banabibi also reveals the history of exploitation in this area. The exploitation of weaker section of the people by the wealthy section of the population; the exploitation of the lower castes by the higher caste groups have been manifested in the myth. The exploited lower castes take shelter of the Islam in order to get rid of this age-old exploitation.

The cult of Banabibi represents the mother cult. Banabibi is said to be the mother of the forest-goers and the village people of the lower caste groups of this area. The deity given protection and prosperity to the rural people engaged in certain type of economy. Moreover, she is the controlling deity of the Sunderban and the forest products. The Banabibi is therefore, represented as mother cult.

Magico-religious traits are incorporated in the system of rituals of Banabibi. The Gunins execute magical activities in order to control the tigers. It is an expression of primitive effort to control the nature.

In a nutshell, the ritual structure of the worship of Banabibi bears the folk characteristics in spite of the intense interaction between the regional culture endowed with little traditional elements and the higher culture of Great tradition. The people living nearby the forest try to maintain original folk characters of the deity in a distinct eco-cultural setting. But the folk people inhabiting in the region far off from the forest maintain interaction with higher culture centering Banabibi. The myths of Banabibi-Dakshin Ray reveals the history of a culture-system endowed with conflict and peaceful co-existence between lower and higher caste groups as well as Hindu and Muslim communities of this area.

A LINGUISTIC GROUP IN SEARCH OF AN IDENTITY : THE MAITHILS OF BIHAR

Subrata K. Roy¹

Key Words : Language, Religion, Culture, Identity, Maithili

ABSTRACT : Maithili is the native language of the inhabitants of a large tract of densely populated land in north Bihar and in adjoining regions of Nepal. Earlier reports reveal that the entire population of Darbhanga and Bhagalpur districts and of a majority of the populations of the districts of Muzaffarpur, Monghyr, Purnea and Santal Parganas used to speak Maithili. The problem of linguistic situation in Bihar is complicated by the fact that although Hindi is the official language of the state, it is not the language of any major population group of the state. It became the official language of the state because the predominant ethnic groups in Bihar, the Magahi (most socially mobilized and politically advanced segment of the population of the state) and the Bhojpuri peoples, chose to adopt Hindi as the medium of education, administration and political communication. Maithili speakers have the fear that Maithili will be dominated by Hindi, and that Hindi will ultimately swallow all the languages of North Bihar. In North Bihar, the demand for the creation of a separate state of Mithila out of the Maithili-speaking districts of Bihar has been voiced from time to time. The demand has been couched in terms of linguistic and cultural distinctness, historical precedent and administrative convenience. In 1954, a statement was put forwarded demanding the formation of a new state of Mithila out of several districts of North Bihar. The underlying justification was the distinctness and greatness of the Maithili language. The demand for a Mithila state is clearly of greater theoretical than practical significance. The demand has not been voiced seriously by the prominent leaders and organizations of the Maithili movement, although the arguments put forwarded were reasonable. The present article focuses light on this linguistic movement and the craving for identity of the people.

I. INTRODUCTION

I

Language and religion have been among the two major symbols of ethnic identity in South Asia during the past century. 'Language and religion have been used as tools both to broaden men's identities in the South Asian countries and to undermine the sovereignties of existing political units' (Brass, 1975). India on the one hand, a multiethnic country, has experienced a succession of regional, linguistic and religious movements aimed at asserting identities since independence (although such movements have occurred in the past, but in the historical times India had not often been a single country); and on the other hand, central leadership of the country has tried to accommodate the political aspirations diverse linguistic, religious and social groups in ways which do not detract from the overall unity and integrity of the country as a whole. The most important of such aspirations in the past were religion-based, for example,

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political independence of India was achieved at the cost of partition of the country (as defined then) mainly on religious lines.

Language, like religion, is another symbol of regional demands for the past few decades. This may be due to the Government policy that regional demands based on language and culture will be somewhat accommodated, but not those explicitly based on religious differences. This rule may have followed from the sad experiences of Hindu-Muslim conflict and partition of the country into India and Pakistan. Further, although language has not actually been a barrier to communication between religious groups, it has been turned to be a symbolic barrier by political leaders seeking to advance the interests of their respective religious communities. In North India particularly, the ongoing process of assimilation and differentiation in regards to culture have affected the relations between religious communities (Hindu, Muslim, Sikh) and language groups (Hindi-users and users of other north Indian languages). In contrast to the rest of India, where language rather than religion has been the principal symbol of group identity, in the North, religion has been the most important symbol relative to language. In Punjab the recent problem started with regard to the policy of language- Hindus speaking Gurumukhi stated Hindi as their mother tongue.

India is characterized not only by multiplicity of ethnic diversities but also by differential group consciousness within and between groups regarding the symbolic importance of ethnic differences. There is a large number of people in India today who do not care for the fact that they speak a language different from that taught in the schools to which they send their children. There are also groups, which are aware of the differences and eager to preserve those differences (Smith, 1963). Some of the groups endeavour to discover, and project the forgotten glory of their traditional literature, art, music and popular customs. This glorification of the past as well as glorification of the mother tongue create an identity for the group, and separate it in its perception from other groups which might stand in its way.

II

The problems and issues concomitant with language in India, particularly, in the north Indian states which are characterized as Hindi-speaking belt, are often the cause of concern for the Central Government as well as scholars. The entire Hindi-speaking belt is often perceived by non Hindi-speakers as a vast, backward region which, by its sheer size, threatens to dominate the Indian Union and to impose Hindi as the official language of India upon the non-Hindi speaking states, thereby threatening the latter's identities. Yet, very little is known about the historic process of social and political change in this region, including appearance, disappearance or reappearance of group identities.

In North Bihar, the demand for the creation of a separate state of Mithila out of the Maithili-speaking districts of Bihar has been voiced from time to time. The demand has been couched in terms of linguistic and cultural distinctness, historical precedent (discussed latter) and administrative convenience. The demand has indeed some justification from the linguistic point of view, since Maithili is a distinct language, different from both surrounding Bengali

and Bhojpuri. However, no significant popularly based movement has ever developed or crystalized on this demand.

Most studies on social (including political, religious, etc.) movements in India have been conducted on the demands - made on behalf of a group by its political leaders and on the consequences of political movements launched to achieve group demands (Aggarwal, 1971; Jain, 1970; Dasgupta, 1970; Nayar, 1966; Smith, 1966). However, hardly any work has been done on the formation of group identity, how it establishes the solidarity and cohesion of a particular group, and how this group-identity ultimately leads to mobilization of the particular group, both socially and politically, for the fulfilment of their group demands.

Here, the term "identity" needs some clarification. Basic group identity consists of a readymade set of endowments and identifications which every individual shares with others from the moment of birth into which he is born at that given time, in that given place. The baby acquires a name, an individual name, a family name, and a group name. He acquires the history and origin of the group into which he is born. The group's cultural continuity from the past naturally endows him, among other things, with his nationality or other conditions of national, regional or tribal affiliation, his language, religion and value system - the inherited clusters of moves, ethics, aesthetics and the attributes that come out of the geography or topography of his birth place itself (Glazer et al., 1975). Superimposed on this basic identity, are the more finely-defined endowments and identifications, developed in response to unique sociocultural conditions, leading to the formation of such sharply focussed identities as are considered here. Although the characteristics of individual or the group identity are important in the development of national consciousness, but it is not necessarily sufficient to guarantee the eventual emergence of a nation.

II. SOCIO-HISTORICAL BACKGROUND OF MAITHILI

Maithili is the native language of the inhabitants of a large tract of densely populated land in Bihar and adjoining areas in Nepal. The land has been distinguished in common parlance as a distinct country with its own traditional poets and pride in everything belonging to itself. Today it is known as "Tirhut" or "Mithila", but in the earliest known period of history it was called "Videha" and included several kingdoms within it, Mithila and Vaishali being the most important. In the fourth and fifth centuries of the Christian era, it came to be known as the province of Mithila or Tirabhukti. During the Mughal rule a part of the northern areas was permanently occupied by the kings of Nepal, the part under the control of Indian rulers was known as "Tirhut". Thus, at present the term "Tirhut" means a revenue division comprising the modern districts of Saran, Darbhanga, Muzaffarpur and Champaran of the state of Bihar. Ultimately, "Tirhut" came to be known as "Mithila" because of linguistic homogeneity, common culture and geography (Mishra, 1976).

Mithila, a region with an ancient history, traditions of which it retains to the present day, is a land under the domination of a section of Brahmins extraordinarily devoted to the learning and culture of Sanskrit (although there is no available records relating to the number of Sanskrit

learning centres and number of Brahmins engaged in such occupation, over the ages. But it is true that most of the Brahmins knew Sanskrit because teaching and worshipping was the main occupation of the Brahmins). It is a land of traditional Vedic orthodoxy, and a continuing centre to this day of Sanskrit learning and culture. The fame of Mithila was for literature and learning. Maithil rulers have been known to be scholars and have patronised the best that was in the land, in their courts. The earliest available records reveal that Mithila was for long a centre of Vedic and Upanisadic learning. It was not only the court where the light of knowledge shone, but among the downtrodden people of the society also there was considerable enlightenment. The earliest name by which the language of Mithila was known, appears to be 'Avahatta' or 'Mithila Apabhramsa'. The age of Maithili language is very difficult to ascertain, but it is certain that both the dialect and its written form existed in the early first half of the 14th century A.D. Before the study of Grierson (1891), the language was considered to be either a form of Hindi or Bengali. Grierson found sufficient similarity and difference among the three major native languages of Bihar (Maithili or Tirhutia, Magahi and Bhojpuri) and for the purpose of classification of these three native languages as dialects of a common language, he coined the term Bihari to distinguish them from Bengali and Hindi. Then he further coined the term Maithili for comparison with other Bihari languages.

III. GEOGRAPHY, TERRITORY AND POPULATION

There are disputes in respect of Maithili-speaking region and Maithili-speaking population. Maithils claim that the language is spoken in most of north Bihar and in parts of Monghyr, Bhagalpur and the Santal Parganas district, but there are considerable dialectical differences both spatially and socially. Grierson (1891) reported that the entire population of Darbhanga and Bhagalpur districts and of a majority of the populations of the districts of Muzaffarpur, Monghyr, Purnea and Santal Parganas speak Maithili. Many people believe that Maithili is the language of Maithili Brahmins and upper castes alone, but it seems more likely that it is the language of the vast majority of the people of Mithila rather than of a particular caste or group, though, of course it has been propagated more by Maithili Brahmins and Kama Kayasthas.

After completing the linguistic survey in Bihar, Grierson (1891) estimated 9,389,376 individuals who speak Maithili. There is no short cut method of knowing how many people in contemporary Bihar actually speak Maithili. Different Maithili scholars and organisations claim that in each census operation, the Maithili speaking people have been enumerated as Hindi speakers against their wishes. This was acknowledged by the Census Superintendent of Bihar in the 1961 General Report Volume, and the problem might have been caused by the Hindi domination in Bihar, which was clearly pointed out by Gait in the 1901 Census Report. Thus, census reports are not of much use, and the 1981 census report of India does not enlist any linguistic group called Maithili. However, it seems likely that the number of Maithili speaker is less than the number claimed by Maithili organisations, and a good deal more than the number conceded by non-Maithili Bihar politicians or enumerated in the census. According to a Maithili organisation's estimate, (Mithila Mihira, 1965) the total Maithili

speaking population in Bihar, Nepal and other non-Maithili areas of India was between 20 and 30 million in 1971. In Bihar alone, it is claimed that the Maithili speaking population is greater than 20 million. However, this rough estimate may nevertheless indicate that a large section of the population of Bihar (roughly one third) speak Maithili.

IV. SOME OF THE FEATURES OF MAITHILI CULTURE

Hindu Maithils are generally believers in the Varna system and in simple devotion to Hindu deities. The three main figures in the Hindu Pantheon- Shiva, Shakti and Vishnu, who are believed to be capable of bestowing rewards, are equally worshipped by them. The worship of these three deities have continued through the ages. The three-fold marks on the foreheads of Maithil Brahmins represent this belief, the three horizontal lines of the sacred ash represent their devotion to Shiva, the vertical white sandal paste represent their faith in Vishnu, and the dot of red sandal paste or of vermilion represents their veneration for Shakti. The worship of Shiva is, however, most popular and predominant.

Maithils have evolved an elaborate system of keeping genealogies. Though presently it is restricted to the Brahmins and Kayasthas only, in the past it was also prevalent among other castes as well. The panjikars (genealogists) maintain genealogical records very carefully. It is still now obligatory for every individual Maithil to get a certificate of non-relationship between the two contracting parties for marriage from genealogists. The institution of panji(genealogy) is about 600 years old and is still retained. This institution was evolved in order to avoid marriage between the prohibited degrees of relationship (Saraswati, 1962).

Another important aspect of Maithil life has been its devotion to the fine arts of music and dancing. Unfortunately, to our knowledge, there is no full history of the Maithili school of music. The greatest contribution to music came from Joyadeva (author of Gitagovinda) and the imitator of his melodies was Vidyapati, although Vidyapati himself composed and lyricised many many songs and got the popularity.

Thus, there are differences as well as similarities between Mithila and the rest of Bihar in culture and also on religion . Mithila is a region of Vedic Hindu orthodoxy, and a continuing centre of Sanskrit learning and culture. It has a separate calendar, a special insistence on genealogical purity, a separate language and script, unique festivals, both religious and non-religious (celebration of Vidyapati Week is the most important one) and some distinctive patterns of dress and diet (for details see Janakinandan Singh, 1954).

VA. MAITHILI LANGUAGE AND LITERATURE

Maithili is spoken in its greatest purity (standard or Chaste Maithili) by the Brahmins of the north of Darbhanga and Bhagalpur districts and by upper caste speakers of western Purnea. These men have a literature and traditions which have prevented corruption of the dialect. It is also spoken with some purity, but with greater signs of wearing away of inflexions in the south of the Darbhanga district, and in those portions of Munghyr and Bhagalpur districts which lie on the northern bank of the Ganges. This may be called Southern standard Maithili. To the east in Purnea, it becomes more and more influenced with Bengali, till in the extreme

east of that district it is dominated by the Siripuria dialect of that language which is a fringe form of speech, in which Bengali is the main, but expressions borrowed from Maithili and written in the Kaithi script of Bihar are incorporated. Thus, in different regions of Bihar the dialectical forms of Maithili differ, and have different names, e.g. Chika-chiki, Jolahi, Kotta and Golari (Grierson, 1891). Further, the Muslims of Mithila do not speak Maithili but speak Shekai, Musalmani and a regional form of Maithili known as Jolha boli but share some of the cultural traits as of Hindus.

It is not known when and how actually the Maithili literature first flourished. Full-fledged Maithili literature is found from about 1324 A.D. Although Jyotirisvara Thakura is considered to be the earliest writer in Maithili, Vidyapati made it more popular. In the Maithili linguistic group, Vidyapati, the fifteenth century poet, is the main symbol of literary movement. All the literary and cultural organisations of the Maithili-speaking people celebrate the Nidyapati week' every year to arouse regional consciousness. There are also several endeavours through which the language developed and propagated (for details, see Mishra, 1976). In the present century, the All-India Maithil Mahasabha was established in 1910, presumably to restore the identity of the language and culture, fulfilling the aspirations of the whole of Mithila in asserting its devotion to the language and culture of the Maithili people and it playing a substantial role in Mithila for the elimination of undesirable social practices. Moreover, the Mahasabha acted for the promotion and awakening of Maithili history and language in different educational institution. Similar other social and cultural bodies which brought about an awakening in Mithila have been: Mithila Shikshita Samaj (Calcutta 1919), Mithila Sammelana (Calcutta 1923, Patna 1924), and Maithil Sahitya Parishad (Patna, 1931). The primary concern of all the organisations has always been the spread and development of the Maithili literature and language through publication of books and periodicals.

Formal recognition of the Maithili language outside Mithila was first granted by the University of Calcutta in 1919, when Maithili was offered as a modern Indian language for study at the Masters level. Then in 1933, Banaras Hindu University started the Maithili language course. At present, it has obtained recognition by all the Universities of Bihar.

Mithila-Hita-Sadhana (1905), the first monthly periodical in Maithili lasted three years. Then came a monthly magazine, Mithila-Mihira (1908), from Darbhanga which is presently a weekly. There were also other journals which were published from outside Mithila, namely Mithila Prabha (monthly, published from Ajmer, 1920), Mithila-Pravakara (monthly, published from Aligarh, 1929). These monthlies were for the most part interested in establishing contacts among Maithilis in different parts of India, especially the Prabasi (domiciled in other states) Maithilis. Although the publication of different books and periodicals in Maithili did not keep pace with the publication of Hindi, but it has made a substantial contribution to the regional consciousness. The quantity and quality of publication is the surest indicator of the spread of a written language, but there are no text books in Maithili for the school children whose parents wish them to be instructed through the medium of their native language, and this is indeed a shortcoming. There is not a single daily newspaper in this language, either. .

VB. PRESENT STATUS OF THE MAITHILI LANGUAGE

Educated Maithils have generally learnt either English or Hindi or both, and have preferred to read and write serious works in those languages, rather than in Maithili, they use their mother tongue only in the home and among friends. The Mithila Mihir complained in 1942 that they could not be found at least 500 subscribers when it proposed to publish a daily newspaper to promote the cause of Maithili, though there were more than 500 Maithil subscribers to English, Hindi and Bengali magazines.

Some Maithilis admit that the majority of the people living in North Bihar are not aware that Maithili is the name of their native language. It has also been noted that many Maithil students who know that Maithili is their native language reject it because they believe that employment is available only to those who study Hindi. Several generations of Maithili-speakers have been educated through the medium of Hindi and have become more proficient in Hindi than in their own native language.

VI. ISSUES AND PROBLEMS

In 1954, Janakinandan Singh put forward a statement demanding the formation of a new state of Mithila out of several districts of North Bihar (Erdman, 1967). The underlying justification was the distinctness and greatness of the Maithili language. First, the artificiality of the existing administrative boundaries of the state of Bihar; secondly, the characteristics which distinguish Mithila from the rest of Bihar and India; and finally, the alleged discriminatory allocation of political power and economic resources among the regions of Bihar, in terms of irrigation facilities, industrial potentiality, employment, education, and so on.

The demand for a Mithila state is clearly of greater theoretical than practical significance. The demand has not been voiced seriously by the prominent leaders and organizations of the Maithili movement, although the arguments put forwarded were reasonable. The questions which arise naturally are: (1) what are the factors behind this movement? and (2) what are the factors which have weakened the movement and prevented mass social and political mobilization?

In any society language is the most powerful and most effective symbol of culture. It fosters the sense of belonging in human beings. If language in its positive role serves as a vital instrument of social, cultural and national integration, then conversely, in its negative role, it can also serve as a powerful divisive force. The sense of belonging to a linguistic group does not come by birth or by study of a grammar, but by usage. It means a commitment to experience in that language. Thus, language may alone be considered as a symbol of culture and identity.

Secondly, the language under the influence and impact of which one grows since infancy is called the native language. It is usually the language people use in their homes and daily life. The use of the native language also leads to emotional fulfilment. But, the acquisition of other languages also becomes necessary as one steps out of the environment of the family into the society at large, for academic, professional or vocational purposes. Otherwise, when

political and cultural pressures increase, people may, and often do, abandon their native language for another language.

The Maithilis offered their complete allegiance and devotion to traditional learning, and the cumulative effect of these made the language very orthodox and conservative. The result was that while a majority of Indian provinces (with different linguistic groups) were giving new lease of life to their languages and literatures by imbibing new influences with the study of western languages and literatures, Maithilis remained comparatively static for a long time. There was sharp difference in the use of Maithili, both spoken and written, among different classes in Mithila. Not only was the literary form of the language quite different from the spoken form, but the Brahmins of Mithila speak a distinctive form of Maithili and use a different script from other castes, high or low. Grierson (1891) differentiated three scripts in use for Maithili: the Maithili or Tirhuti script used only by Maithil Brahmins; the Kaithi script, used by educated classes in north India, generally; and the Devanagari script used by educated peoples of Bihar. Thus, Maithili script was exclusively used by an upper caste and was not associated with folk culture in any way. In the spoken form also there is no standardization; Brahmins of Darbhanga speak pure Maithili but the lower castes speak a different form which has been named 'chikka chhiki boli'. Beside these, in different parts of Bihar the language (spoken form) has been mixed with surrounding languages like Bhojpuri, Bengali and Hindi.

The problem of linguistic situation in Bihar is complicated by the fact that although Hindi is being the official language of the state, it is not the language of any major population group. It became the official language of the state because the predominant ethnic groups in Bihar, the Magahi and the Bhojpuri peoples, lacking a standard literary language of their own, chose to adopt Hindi as the medium of education, administration and political communication. Thus, among the Hindus in Bihar, the language issues involve a competition between two literary languages: Hindi, which has had the advantages of earlier standardization and official status, and is the chosen language of a politically dominant ethnic group; and Maithili, an independent literary language and the language of the largest ethnic group in the state, but a non-standardized language, lacking official status, and recognition and spoken in the economically and socially less advanced areas of the state. In this competition Hindi won the race. In fact, Hindi in Bihar has become the language of the Magahi-speaking people, who have been the most socially mobilized and politically advanced segment of the population of the state. Maithili speakers have the fear that Maithili will be dominated by Hindi, and that Hindi will ultimately swallow the whole of the language of north Bihar.

Apart from the recognition of the Maithili language as an independent identity, the organisers demanded for inclusion of the Maithili language in the Eighth Schedule of the constitution of India, and the recognition of Maithili language as the medium of instruction in both primary and secondary stages in the schools. The more political demands of the organisers include the acceptance of Maithili as a subject of examination for administration into Bihar Public Service and recognition of Maithili as a provincial or second official language of Bihar.

In addition to those specific demands for the recognition of Maithili language, the leaders of the movement also demanded a University and a radio station in Mithila, so that the cultural programmes of Maithili can be propagated. However, some of the basic demands remain unfulfilled due to the weakness of the movement.

PROSPECTS AND COMMENTS

Continued use and proficiency in the language, at present depends primarily upon the family and secondarily upon the few institutions of cultural reinforcement which can still be maintained for a longer time. The values and prestige factors operative with the family will largely determine whether or not Maithils will seek to use and preserve their language within their own circle of influence.

In many families where parents are themselves no longer proficient in Maithili there is some indication today of a desire to provide the children with an opportunity to learn Maithili and to be exposed to Maithili culture, history and literature. However, the family itself is no longer able to provide any of this content matter. Therefore, the continued use of the Maithili language will also depend on the dedication of these organisations and few volunteers, which to the present time have recognised this as a responsibility.

Most societies look forward to the future with considerable hope. The devoted leadership of old is gone. The second and third generations do not actively participate in their activities and the societies require new leadership from the present generation, which is quite insufficient to safeguard their existence. It appears that Maithili societies will cease to function with its linguistic and cultural identity with the passing away of the older generation of Maithils.

The Maithili language magazines (weekly, monthly) will live with their current readers and ultimately it will lose its identity. Only a tremendous increase in younger readers could save them from extinction in a decade or so. Some publications have already switched to Hindi and this trend is likely to increase, with the proportion of magazine space devoted to Hindi, rising constantly.

Maithili events, such as folk and religious festivals will continue since they require only little knowledge of the language. The long and almost unobtrusive process of Hindiization (assimilation with the Hindi speaking group or to become a Hindi speaker) has brought about the use of Hindi language in many organisations and events established by the Maithils. The use of Maithili as a language of natural communication and medium of teaching would be difficult to re-establish.

There are undoubtedly many ways in which Maithili experiences have been very similar to the experiences of most of other language groups in India. However, it is unlikely that its current interest in Maithili, gratifying though it may be, will result in marked and sustained proficiency unless there is strong general encouragement to bring this about. This encouragement can come only from Governmental and intellectual circles and it must encompass all minority languages spoken in India today.

Obviously, there are so many unresolved problems, which need careful dealing. Can such

an official and widespread reversal in internal policy be accomplished? Can minority cultural groups come to view themselves with respect? Such changes can not easily be brought about for they involved the entire functional pattern of the nation. Can public school teachers react more constructively to the non-Hindi mother tongues their students know or know a little bit? Can employers treat bi-lingual workers with respect? Will politicians learn to distinguish between political entities and cultural entities? However, such questions can be continued and at present we have no answer to these endless questions. Future studies would perhaps be able to answer these questions.

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TRIBAL DEMOGRAPHY OF WEST BENGAL IN 2001: SOME OBSERVATIONS

Bela Bhattacharya

Key Words : Concentration index, locational quotient, major minor tribes, rural-urban distribution, work participation rate, literacy rate.

ABSTRACT : Tribal population of West Bengal is less than 4.5 million but they are much heterogeneous. According to their population size the 38 tribal communities of the state can be classified into seven categories: Insignificant, Very minor, Minor, Low, Important, Major and Dominant. Numerically and in many other respect the Santal are the dominant tribe. Rabha, Kora, Munda can be considered as major tribes. The pattern of spatial concentration and clustering on the basis of two indices: location quotient (LQ) and index of concentration reveal that the tribal forms two distinct sub regions. Some common features of the sub region with the high tribal concentration index are low female literacy rate, higher gap of literacy rate between the sexes, higher work participation rate for female,. Contrary the districts with lower index value have lower female work participation, lower gap of literacy rate and higher female literacy rate.

According to 2001 census there are more than 84 million individuals who are considered as schedule tribes in India. They constitute 8.20 percent of total population. Among them the percentage of male is 8.01 of the total male population and for female the corresponding is 8.40 percent of the total female population. In West Bengal total tribal population is 4.4 million of which 2.22 million individuals are male and 2.18 are female members. In terms of percentage the figure of the total tribal population is 5.50. Male population comprises 5.36 percent and female 5.64 percent of total male and female population of the state. Therefore, both in national and state levels preponderance of female can be noted. Among the rural population corresponding figure is 2.44 percent. In the state level they constitute 7.16 percent of the total rural population. In all India a level tribal population constitute 10.42 percent the rural area and the figure for urban area is 1.21 percent. In all India context the tribe constitute 10.23 percent male and 10.61 percent of the female of the total rural population. In the national males and females live in the urban areas are 2.39 percent and 2.50 percent respectively but in the state level the corresponding figures are 1.17 percent for male and 1.25 percent for female. It becomes evident that there are differences between the all Indian and state levels with regard to the distribution of populations in rural and urban segments.

Table 01 Distribution of tribal population in all India and state levels

	India			West Bengal		
	Person	Male	Female	Person	Male	Female
Total	8.20	8.01	8.40	5.50	5.36	5.64
Rural	10.42	10.23	10.61	7.16	7.04	7.29
Urban	2.44	2.39	2.50	1.21	1.17	1.25

Growth rate of tribal population during 1991 -2001 is 15.79 % against the national level 23.57%. In terms of total population the percentage of the tribes has been increasing at the national level and decreasing at the state level. The proportion of increase at the national level has started from 6.82% in 1971 to 7.70% in 1981, 8.00% in 1991 and 8.20 in 2001. The proportion of decrease at the state level was 5.72 % in 1971, 5.63% in 1981, 5.60% in 1991 and 5.50% in the estimate of 2001 census.

Table 02 Percentage variation during different decades 1971 – 2001

Population	1971	1981	1991	2001
All India	6.82	7.70	8.00	8.20
West Bengal	5.72	5.63	5.60	5.50

Table 03 Population growth during different decades 1971 – 2001 (in percentage)

Population	1971	1981	1991	2001
Total population	2532969	3070672	3808760	4406794
Decadal growth rate	23.31	21.23	24.04	15.79
P. C to Total population	5.72	5.63	5.60	5.50

The population growth during last four decades reveals that there is significant growth of population during 1981-1991 decade . Previously rate of decline was there aspecially percentage in 1971 –81 by 2 points but during 1991 – 2001 percentage points became more than 8. It maybe mentioned in this context that Siteracy rate has also been substantially increased by this time. But we do not know exactly how

Table 04 Population variation and literacy during different decades 1971 - 2001

	1971	1981	1991	2001
Decadal variation	23.31	21.23	24.04	15.79
Work participation rate	37.56	34.11	43.41	48.77
Literacy rate	6.50	8.92	29.60	43.40

far these to variables are related to each other. By and large work participation rate has also been increased. It is important to investigate, what are the relations between these demographic characteristics, which deserves to be studied in detail.

Table 05 Category of different tribes on basis of population, 2001

Category	Number	Population (in thousand)	Tribe
Insignificant	5	>1	Pahariya, Mru, Khond, Hajang, Chakma
Very minor	11	1-5	Sauia Paharia, Mahli, Karmali, Gorait, Garo, Chero, Birhor, Birjia Asur
Minor	4	5-10	Gond, Nagesia, Magh, Korwa
Very Low	4	10-25	Lohra, Kharwar, Ho, Chik Barik, Baiga
Low	5	25-50	Savar, Mech, Malpahri, Lepcha, Kisan
Important	5	50-100	Mahan, Lodha, Bhutia, etc
Major	4	100-150	Rabha, Kora, Oraon, Munda
Dominant	1	150 <	Santal

According to their population size the 38 tribal communities of the state can be classified into seven categories: Insignificant, Very minor, Minor, Low, Important, Major and Dominant. Numerically and in many other respect the Santal are the dominant tribe. Rabha, Kora, Munda, Oraon are also considered as major tribal group distributed both in north, central and south Bengal. There is only exception the Rabha, a matrilineal community, who mostly live in North Bengal. Other traditional communities are Lepcha, Hajang, Chakma, Bhutia and Toto.

Table 06 Category of different tribes on the basis of percentage to total tribal populaion, 2001

Category	Number	Percentage	Tribe
Insignificant	14	0.01-0.05	Birhor, Sauia Paharia, Mahli, Karmali, Gorait, Garo, Chero, Biz* Kharwar
Very minor	13	0.05-1.00	Pahariya, Mru, Khond, Hajang, Chakma Savar, Mech, Malpahri, Lepcha, Kisan Asur, Biga, Chik Barik, Gond, Ho, Lepcha, Mal Paharia, Mech
Minor	6	1-3	Bhutia, Lodha, Bedia, Mahali, etc.
Insignificant	2	3-5	Rabha, Kora
Very low	0	5-7	—
Low	2	7-9	Munda, Bhumij
Important	0	11-13	—
Major	1	13-15	Oraon
Dominant	1	50 <	Santal

The tribes can also be classified according to the percentage distribution of respective tribe to the total population size into six categories as above: insignificant, very minor, low, medium, major and dominant. Number of communities belong to: insignificant is 14, very minor 12, low 6, significant 2, major 2 and dominant 1. The Birhor, Sauiya Paharia, Mahli, Karmali Gorait, Garo, Chero, Bidiaetc belong to 0.01 – 0.05 percentage category; Savar, Mech, Malpahri, Lepcha, Kisan, Asur, Biga, Chik Barik, Gond, Ho 0.05 – 1.00 percentage category; Bhutia, Lodha, Bedia, Mahali, 1 – 3 percentage category; Rabha, Kora 3 – 5 percentage category; Munda, BhumiJ 7 – 9 percentage category; Oraon 13 – 15 percentage category and the Santal has as high as about 52 percentage.

The pattern of spatial concentration and clustering can be measured by two indices: location quotient (LQ) and index of concentration. The location index is a good measure of relative variation concentration between one at the state and the other at the district levels. Larger share (LQ) is confined to Purulia and Jalpaiguri districts having distinct geomorphological features than that of the rest of the area of the state. In fact, one of these two districts lies in platen- paneplain and the other in sub-montane region (which is known as Duars). The rest is spread over pain alluvial tracts of West Bengal. On the basis of departure of LQ value of each district from unity (the critical value) all LQs can be divided into two broad classes. There are 2 districts sharing 2 - 3.5 LQ values Puruliya and Jalpaiguri and 5 districts Birbhum, Bardhaman, Bankra, Maldah, Medinipur having 1.0 - 1.9 shares. Rest of the districts are below unity level. Index of concentration measures magnitude of spatial concentration at the state and district levels. Medinipur has highest index value of 18; values of Purulia, Bardhaman and Jalpaiguri rages between 10 - 15. Another important measure is percentage of tribal population to the total population both at states and districts level.

Table 06 Index of concentration and location quotient (LQ) of different district of tribal population during last two decades, West Bengal

	Index of concentration		Location quotient (LQ)	
	2001	1991	2001	1991
WEST BENGAL				
Darjilng	5	4.70	2.31	2.41
<i>Jalpaiguri</i>	<i>14.58</i>	<i>15.47</i>	<i>3.43</i>	<i>3.76</i>
Koch Bihar	0.31	0.35	0.10	0.11
Uttar Dinajpur	3.26	8.07	0.93	1.76
Dakshin Dinajpur	5.5		2.94 N&S comb.	
Maldah	5.16	4.50	1.26	1.16
Murshidabad	1.61	1.62	0.24	0.04

	Index of concentration		Location quotient	
	2001	1991	2001	1991
Birbhum	4.51	4.66	1.23	1.24
<i>Bardhaman</i>	<i>10.03</i>	<i>9.87</i>	<i>1.16</i>	<i>1.11</i>
Nadia	2.47	2.38	0.45	0.42
North Twenty Four				
Parganas	4.45	4.46	0.41	0.42
Hugh	4.82	4.63	0.77	0.72
Bankura	7.51	7.61	1.89	1.85
<i>Purulia</i>	<i>12.83</i>	<i>11.23</i>	<i>3.33</i>	<i>3.44</i>
<i>Medinipur</i>	<i>18.15</i>	<i>18.11</i>	<i>1.51</i>	<i>1.48</i>
Haora	0.43	0.26	0.08	0.04
Kolkata	0.21	0.23	0.04	0.03

The district level pattern of tribal distribution shows four distinct clusters: 1] Djeelinng, Jalpaguri and Dinajpur, which form Northern group where 12 lakh tribal people live having 27.5 percentage of total tribal population; 2] the South Western group comprises Medinipur Bankura, Purulia, and Bardhamn with more than 20 lakh population having 46.2 percentage of total tribal population, 3] Central Bengal - Malda, Murshjdad, Birbhum 5 lakh tribal population having 11.5 percentage of total tribal population and 4] the South Bengal with 6 lakh population having 14.5 percentage of total tribal population. However, regional pattern of tribal distribution to the total population in such four distinct clusters having 13.5%, 9.1%, 4.2% and 1.9 % respectively form distinct spatial clusters in the state.

In stead of the fact that South western Bengal having largest share (more than 46 percentage of tribal population) but Northern Bengal 4.4 percentage points than the former so far the percentage of tribal to total population is concerned. This is quite different pattern distribution than the distribution of the Index of tribal concentration. The LQ value is greater in South western Bengal but the percentage of tribal population to total population is the highest in Jalpaiguri i.e. 21.1 % and the second third position go to Purulia and Dakhin Dinajpur having 18% and 16% respectively. The position of Koch Behar is the lowest being 0.5%. The values in seven district including Haora and Kolkata and remain same in three districts, Mursidabad, North and South 24 Parganas. But it decreases in all the districts of Northern Bengal during 1991 -2001 inter census period.

Table 07 Spatial distribution of tribal population and region formation

	General population			Tribal population			Tribal to total Percent
	Rural	Urban	Total	Rural	Urban	Total	
West Bengal	57,734,690	22,486,481	80,221,171	4,136,366	270,428	4,406,794	5.5
Darjiling	1,085,023	520,877	1,605,900	178,878	25,289	204,167	
Jalpaiguri	2,799,357	603,847	3,403,204	625,585	16,103	641,688	
Uttar Dinajpur	2,147,353	294,471	2,441,824	122,110	2,755	124,865	
Dakshin Dinajpur*	1,306,004	196,643	1,502,647	236,271	6,046	242,317	
Sub total	7,337,737	1,615,838	8,953,575	1,162,844	50,193	1,213,037	13.5
Bardhaman	4,347,275	2,572,423	6,919,698	347,072	94,760	441,832	
Bankura	2,956,558	235,264	3,191,822	329,080	1,703	330,783	
Puruliya	2,279,994	255,239	2,535,233	456,573	6,879	463,452	
Medinipur	8,627,519	1,010,954	9,638,473	774,315	24,369	798,684	
Sub total	18,211,346	4,073,880	22,285,226	1,907,040	127,711	2,034,751	9.1
Maldah	3,049,245	240,915	3,290,160	224,698	2,349	227,047	
Murshidabad	5,131,374	732,343	5,863,717	73,202	2,751	75,953	
Birbhum	2,754,067	258,479	3,012,546	198,612	4,515	203,127	
Sub total	10,934,686	1,231,737	12,166,423	496,512	9,615	506,127	4.2
Nadia	3,642,709	979,047	4,621,756	101,911	11,980	113,891	
North 24 Parganas	4,081,077	4,849,218	8,930,295	168,686	30,250	198,936	
Hugh	3,352,637	1,687,410	5,040,047	198,486	13,576	212,062	
Haora	2,120,439	2,153,571	4,274,010	8,543	10,625	19,168	
Kolkata	—	4,580,544	4,580,544	—	9,810	9,810	
South 24 Parganas	5,819,285	1,089,730	6,909,015	79,208	5,558	84,766	
Sub total	19,016,147	15,339,520	34,355,667	556,834	81,799	638,633	1.9

Distribution in Rural Urban Segments

There are little more than 4.1 million tribal population live in rural areas of 17 districts of the state according to the 2001 census. On the aggregate basis, they account for 7.16 per cent, which is little higher than their share in the total population. According to the 1991 census, 3.6 million population having 7.32 per cent live in villages. Therefore, the decadal growth rate of the rural population between 1991 – 2001 is 3.4 per cent. The distribution pattern of rural segments of tribal population shows a little variation as given in Table 08. Only 45 percent of the tribal population of the district live in rural area. The percentage categories varies between 85 and 99 in almost all the districts except two [Bardhaman (79) and Haora (45)]. It is important to note that there is more urban tribal population than rural in Haora district.

Table 08 Categories of percentage distribution of rural tribal population in different districts.

Percentage Categories	No. Districts	Name of the Districts
99	2	Maldah, Bankura
95-98	6	Medinipur, Murshidabad, Uttar Dinajpur, Birbhum, Purulia, and Koc Behar
90-94	4	Dar fling, Dakhin Dinajpur, Hugli, South 24 Parganas
85-89	3	Jalpaiguri, Nadia, North 24 Parganas
80-84	—	—
75-79	1	Bardhaman
50 –75	—	—
below 50	1	Haora

According to the 2001 census, there are 0.27 million tribal people i.e. 6.1 percent of their total population live in urban areas of the state. On the aggregate basis, they account for 1.21 percent of the total population of the state, which is little higher than their share of 1.05 % in the 1991 census [total urban population – 0.2 million]. Therefore, 0.7 million increase of urban population took place during 1991 – 2001. The estimated rate of increase of the urban population between 1991 and 2001 is 37.75% whereas the corresponding figure for the rural population is 14.50%. Hence, there is a trend of population mobility towards the urban areas of the state.

In fact, tribes are distributed in urban areas of all the districts in the state. Among the tribes higher percentage of concentration to the total tribal population is found in five districts Haora [55%], Bardhaman [21%], North 24 Parganas [15%], Darjeeling [6%]. Six districts of the state have 1% - 3% concentration of the total tribal population and 5 % - 9% in 3 districts. Haora and North 24 Parganas have highest concentration 55% and 15% respectively.

Table 09 Categories of percentage distribution of urban tribal population in different districts

Percentage Categories	No. Districts	Name of the Districts
Less than 1.0	3	Koch Behar, Maldah, Bankura
1-3.0	6	Uttar and Dakhin Dinajpur, Mursidabad, Birbhum. Purulia, South 24 Parganas
3.1-4.9	3	Nadia, Haora, Kolkata
5.0-9.9	3	Jalpaiguri, Hugli, Darjiling
10.0-15	1	North 24 Parganas
15- 30	—	—
30-50	—	—
50 and above	1	Haora (55)

All the tribal communities have spread over the urban areas but in different proportions. The percentage of tribal communities in urban areas to the total tribal population of the urban areas varies from one community to other. It is least among Nagesia (0.01 %) and highest among the Mog (71 %). But the total contribution to the total urban tribals is much insignificant. There are 28 communities have less than 1.00% contribution to the urban population. It is due to the small population size. The largest share goes to the Santal, who share 43.45% of the total urban tribal population but only 5% of the total Santal people live in urban area. The Oraon contribute 11% to the total urban tribal population. But only 4.75% live in urban areas. The corresponding figures for the Munda, Bhumij and Kora are 6%, 8% and 5% respectively. However, 9.9% of Kora, 5.5% of Munda and 2.1 % of Bhumij of the total population live in urban areas. It becomes evident that smaller the population size of the tribe, higher is the urban percentage.

Table 10 Selected urban tribes and their population structure

Communities	Total	Urban	% to total tribal population	% to total urban tribal population
Santal	2280540	117496	5.15	43.45
Oraon	587868	29270	4.98	10.82
Munda	341542	17418	5.09	6.44
Bhumij	336436	10709	3.18	7.56
Kora	142789	14070	9.85	5.24
Sub total	3689175	188963	5.12	69.88
Khond	226	42	0.02	18.58
Mru	270	122	0.05	45.19
Hajang	597	227	0.08	38.02
Chakma	642	154	0.06	23.29
Parhiya	678	128	0.05	18.88
Sub total	2413	673	0.23	0.25

An important feature of tribal sex ratio of West Bengal is that it is balanced and 23 tribal communities confirm this observation. Among the 15 communities 8 have low sex ratio ratios and remaining 7 have high sex ratios. The lowest is found among the Chakma i.e 601 women per thousand male. The highest female bias can be noted among the Gond i.e. 1088 per thousand male. In general average sex ratio for all the tribes is balanced being 982 per thousand male.

Table 11 Categories of tribal sex ration

Categories	Sex Ratio	No. of Tribes	Name of the Tribes.
High	1001-1050	7	Asur, Birhor, Gorait, Garo, Ho, Lohra, Mal Pahariya
Balanced	951-1000	23	Baiga, Birja, Bhutia, Kharwa, Kisan, Lepcha, Kora, Munda, Oraon, Lodha, Santal, Savar Rabha etc.
Low	below 950	8	Chkma, Gond, Hajang, Karnali, Khond, Kisan etc.

Tribal sex ratio is balanced in 15 districts : Mursidabad, Birbhum, Purulia, South 24 Parganas, Nadia, Haora, Jalpaiguri, Hugli, Darjiling, North 24 Parganas, Medinipur etc; low in 3 districts : Koch Behar, Haora, Kolkata and high in Hugli

In rural segment high sex ratio found in 4 districts: Hugli, Maldah, Bardhaman, Haora. Balanced sex ratio found in 15 districts: Bankura, Uttar and Dakshin Dinajpur, Mursidabad, Birbhum, Purulia, South 24 Parganas, Nadia, Jalpaiguri, Hugli, Darjiling, North 24 Parganas and Medinipur. It is important to mention that there is no district has low sex ratio.

Table 12 Distribution of tribal sex ratios (district wise)

Categories	Sex Ratio	No Districts	Name of the Districts
High	1001-1050	1	Hugli
Balanced	951-1000	15	Maldah, Bankura, Uttar and Dakshin Dinajpur, Mursidabad, Birbhum, Purulia, South 24 Parganas, Nadia, Haora, Jalpaiguri, Hugli, Darjiling, North 24 Parganas, Medinipur
Low	901-950	3	Koch Behar, Haora, Kolkata

In urban segment high sex ratio is found in 3 districts: Darjiling, Birbhum, Hugli and balanced in 2: Bardhaman and Medinipur. Low sex ratio in 14 districts namely South 24 Parganas, Nadia, Hugli, Maldah, Purulia, Uttar and Dakshin Dinajpur etc.

Table 13 Tribal sex ratios in rural area

Categories	Sex Ratio	No Districts	Name of the Districts
High	1001-1050	4	Hugli, Maldah, Bardhaman, Haora
Balanced	951-1000	15	Bankura, Uttar and Dakshin Dinajpur, Mursidabad, Birbhum, Purulia, South 24 Parganas, Nadia, Jalpaiguri, Hugli, Darjiling, North 24 Parganas, Medinipur
Low	901-950	—	—

The high sex ratio is mainly associated with the sex selective migration but genetic factors cannot be ruled out. Interdistrict migration and migration from rural area is well known. It appears from the above tables that there are significant differences between rural and urban sex ratios.

Table 14 Tribal sex ratios in urban area

Categories	Sex Ratio	No Districts	Name of the Districts
High	1001-1050	3	Dadiling, Birbhum, Hugly
Balanced	951-1000	2	Bardhaman,, Medinipur
Low	901-950	14	South 24 Parganas, Nadia, Hugli, Koch Behar, Jalpaiguri, Murhidbad, Bankura, Haora, North 24 Parganas, Kolkata Maldah, Purulia, Uttar and Dakhin Dinajpur

Tribal Literacy

Average tribal literacy rate at the state level is 43.40 per cent. The rate in rural area is very close being 42.35 % but in urban area it is little higher i. e. 56.67%. As the aggregate of male literacy is 57.38 % and in female 29.15%, there are 27 percentage points discrepancy in literacy rate between the sexes. This is an important and great social problem not only among the tribes but also among the low economic groups of nontribal population.

Table 15 Tribal literacy rate in rural — urban segments, 2001

	Total	Rural	Urban	Male	Female
West Bengal	43.40	42.35	56.67	57.38	29.15
Highest	55.48 [Darjiling]	53.59 [Koch Behar]	84.76 [Darjiling]	83.86*	67.07* [*Kolkata]
Lowest	28.68 [Dak. Dinaj]	27.82 [**Uttar Dinajpur]	35.78 [Birbhum]	39.51**	17.63** [**Uttar Dinajpur]

The highest literacy rate is found in Darjiling district [55.48] and lowest in Dakhin Dinajpur [28.68]. The highest rural literacy rate is found about 53.59 in Koch Behar and 84.76 in Darjiling urban area. The lowest rural literacy rate is found about 27.28 Uttar Dinajpur and 35.78 in Birbhum. Obviously Kolkata is the place for both the highest male and female literacy rates 83.86 and 67.0 respectively.

The spatial variation in literacy is not less prominent. The urban rural literacy rates varies up to 36 percentage points in Uttar Dinajpur and 9 percentage points in South 24 Parganas.

Similarly variation between the sexes in literacy is also quite prominent. There are differences about 36 percentage points in Purulia and 15 percentage points in Dakhin Dinajpur, which is the lowest.

Work participation rate is generally higher in tribal population due to various reasons. The average rate at the state level is 48.77%. The rate is slightly higher in rural areas i.e. 49.64% but quite less in urban area 35.46%. A sizeable portion of tribal women is also considered as worker. The work participation rate among the male is 48.59% and the corresponding figure for the female is 21.64%. The rate differs from one to other district and the range of variation lies between 53.93% in Bankura and 38.32% in Kolkata. In rural area the corresponding values are 56.17% in Haora and 41.86% in Jalpaiguri. In urban area the range of variation lies between 41.57% in Birbhum. and 29.12% in Purulia. Sex wise variation between urban and rural areas is quite evident. In rural area male participation lies between 63.97% (Haora) and 46.91 % in Jalpaiguri and in urban area the corresponding figures 57.11 % Haora and 42.19% (Darjiling). In case of female the rate in urban area varies between 33.04% [Birbhum], 14.63 % [Koch Behar]. In rural area female participation is higher than that of urban area. The rate varies between 51.85% [Bankura] and 30.87 [North 24 Parganas].

Table 16 Work participation rate of tribal population 2001

	Total	Rural	Urban	Male	Female
West Bengal	48.77	49.64	35.46	48.59	21.64
Higher limit	41.57 (Bardhaman)	56.17% (Haora)	41.57 (Birhum)	60.01 (Haora)	51.70 (Bankura)
Lower limit	38.32 (Kolkata)	41.86 (Jalpaiguri)	29.12 (Purulia)	46.88 (Jalpaiguri)	14.63 (Koch Behr)

Discussion

A comparative study of five demographic characteristics can be made to assess some aspects of tribal population of the state at the present situation. The selected characteristics are index of concentration, literacy rate, female literacy, differences of literacy rate between male and female. Accordingly five districts Medinipur, Jalpaiguri, Puruliya, Bardhaman, Bankura with the highest values of tribal concentration index are compared with other five districts with lowest index values. Some common features of the districts with the high tribal concentration index are low female literacy rate, which varies between 23% and 30%, higher gap between the sexes so far literacy rate is concerned. The tribes of these districts have higher work participation rate for female, which ranges between 36 % and 52%. Contrary the districts with lower index value have higher female.

Table 17 Comparison of selected demographic features of districts having higher and lower concentration index

Higher Concentration Index	Index value	Literacy rate	Female Literacy	Gap of literacy between sexes	Female W P R
Medinipur	18.15	46.6	30	32	49
Jalpaiguri	14.58	42.6	30	24	36
Puruliya	10.53	42.7	23	38	49
Bardhaman	10.03	41.8	27	27	44
Bankura	7.51	49	31	36	52
Lower concentration Index					
Kolkata	0.31	76.4	67.1	16	17
Haora	43	52	42.2	19	35
Murshidabad	1.41	35.8	25	21	41
24 Paganas S	1.91	43.3	29.9	27	30
Nadia	2.47	40.6	29.2	22	34

literacy rate which varies between 76.4% and 35.8%, lower gap for literacy rate between the sexes, lesser participation rate for female which lies between 35 % and 17%.

In conclusion, it can be stated that low concentrated population are mostly recent migrated, more educated (specially female population), women's rate of work participation is less. It may be due to the fact that a larger segment of young population has been enrolled in school for education. They live mostly in urban areas and the way of living pattern is considerably different. Therefore, there are significant differences between the higher and lower concentration areas so far five selected variables namely index of concentration, literacy rate, female literacy, differences of literacy rate between male and female and women work participation rate are concerned.

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QUATERNARY ENVIRONMENT AND HUMAN ADAPTATIONS: A STUDY IN THE SUSUNIA REGION

Priyadarsini Sengupta

ABSTRACT : Sporadic finds of tools have been reported long since from the district of Bankura. Specifically the Susunia region has been mentioned as a rich host of palaeontological and cultural materials. However, so far very little systematic work has been carried out, keeping in mind the holistic point of view. The present work was undertaken mainly to study and identify the climatic markers from the realms of geology, and then attempt a reconstruction of the Quaternary climatic conditions from them. Within this framework it has also been attempted to view the efforts of prehistoric men to adapt to a particular environment, through the study of surviving cultural relics.

INTRODUCTION

This paper is based on a preliminary field survey carried out by the author in three phases in 1994 and 1995, in the Susunia region, district of Bankura, West Bengal. The facts and figures are solely based on surface survey, and do not involve any excavation, except one trial pit at one of the localities and some scraped sections. The aim was to record and document primarily environmental evidences, based on the study of the local geomorphology. The extended objective was to relate the evidences of prevalent lithic cultural materials to the existing environmental set up.

ON CULTURE, ENVIRONMENT AND ADAPTATION :

That living organisms and their environment are inextricably linked together, and that their interrelatedness is an unquestionable phenomenon has long since been established by the works of naturalists and biologists. "Interactions between living organisms and their environments are the subject matter of ecological studies. (Vayda, 1969) This fact was very soon realised and taken up by archaeologists, and the importance of studying prehistoric cultures in the backdrop of their respective environmental conditions was emphasised (Childe 1951a and b; Steward 1955; Binford 1968; Butzer 1971, 1982; Hole and Flannery 1967; Flannery 1965, 1968; Sahlins 1964). Various models and approaches like environmental determinism, environmental possibilism, cultural ecology, systems theory etc. were forwarded by different scholars. At the sametime, the concept of 'culture' in the context of archaeology was also undergoing radical changes; and the strong affinities that archaeology has with anthropology were firmly established (Binford 1962). Culture was thus defined as extrasomatic means of adaptation (White 1959).

Adaptation, as defined in the context of evolutionary biology is any structure, physiological process or behavioral pattern that makes an organism more fit to survive and reproduce (Wilson 1975). It is, hence, a strategy for survival and reproduction, in a given

environment (Kirch 1980). The survival strategy which directly points at factors like means of food procurement, and self defence, selection of raw material for tool manufacturing, identifying the need for shelter etc. indirectly incorporates such aspects like the potentiality of a particular environment in terms of resources, and the ability of human groups, occupying that environment, to exploit effectively such resources. Different environments present differing degrees of variation in the structure and nature of available resources. This variation may be regarded as the risk factor for survival of human groups and need to be minimised by their adaptive strategies (Gamble 1986) mainly in the form of technology.

THE BACKDROP

Prehistoric studies in Bengal can be traced back to the times of V. Ball (1865), when he discovered in Bankura, one hand axe while carrying out geological investigations. Since then, many scholars have worked on the prehistoric sequences in Bengal. Most studies have, however, remained confined to the western part of the state comprising the whole of the district of Purulia, and parts of the districts of Bankura, Bardhaman, Birbhum and Midnapore; as most of the evidences have been yielded from this area.

Almost a hundred years after the discovery of the first hand – axe in Bankura, the Archaeological Survey of India, under the direction of V.D. Krishnaswamy (1947, 1959-60) started exploration in parts of the district, along the river *Kasai*, and came across certain palaeolithic (lower and middle) tools. Unfortunately they were mostly surface collections, and no chronological sequence could be imparted to them.

From 1961 onwards, a systematic study of this region was taken up. Gradually these works intensified, and gathered momentum (Sen et.al. 1963; Ghosh 1961, 1962, 1966; Ghosh and Das 1966; Chakraborty and Chattopadhyay 1984; Datta et.al. 1984; Datta 1991 a and b; 1995; Chakrabarti 1993; Basak 1997). But all these studies are delimited by a lack of holistic approach, and are mostly brief reports and cataloging of sites; with mention of their gross typological attributes.

The Susunia region was chosen for exploration with a view to understand the geomorphological pattern of the region in association with its cultural repertoire.

GEOMORPHOLOGY :

The district of Bankura occupies the western part of West Bengal, lying between 22°-38'N and 23°-38'N latitudes and 86°-36'E and 87 °E longitudes. In shape, the district roughly resembles an isocles triangle, with its base in the north and north-east, and its apex in the south – west. The district may be classified into three broad natural divisions according to the varied topography – the hilly country to the west, the connecting undulating tract in the middle, and the level plains in the east. The ground surface gradually rises towards the west, giving rise to rolling, undulating plains. Further westwards, the land rises to form rocky hillocks, ridges and valleys, which are actually the continuation of the Chotonagpur plateau.

The hills of the district mainly comprise isolated hillocks or monad nocks, of which only two have heights of any significance- Susunia hill (1442' asl) and Biharinath hill (1400' asl).

The *Damodar* is the main river of this region, situated in the northern part of the district, and forms the natural boundary between Bankura and Bardhaman districts. It is fed by a number of tributaries, of which the river *Gandheswari* is important in this survey.

The *Gandheswari* rises in the region north west of the Susunia hill in Chhatna, and following a south – eastern course, drains a large part of Chhatna and Bankura before it joins the *Dwarakeswar*, a few miles downstream from Bankura town.

The greater part of Bankura is covered by laterite and alluvium, while the gneissic and schistose rocks of archaean age occur in the western part of the district. Laterite, interspersed with gravel and sand forms the most characteristic geological feature of the district.

The formation of the Susunia hill falls within the pre-quaternary geological events of west Bengal (Ghosh and Majumdar 1991). Quaternary geological and geomorphological studies have been carried out extensively in this region by several workers (DasSarma, Biswas and Nandi 1982; Ray 1978; Ghosh and Majumdar 1981,1991). Lying in the fringe area of the Chotonagpur plateau, it is made up of primarily slate, interbedded with quartz and quartzitic rocks. These are of significance as they form the potential raw material sources for manufacture of lithic tools. The hill stands as a resistant block in a surrounding eroded background.

METHODOLOGY :

As has been stated earlier, this work was a preliminary and experimental survey, whose main aim was to collect as much information possible about the quaternary environments from the available geological materials, of course within certain limitations. The methods therefore may be divided into a number categories, keeping the respective objectives in mind :

- Broad study of the geomorphology of the area,
- Somewhat detailed study of the geological materials of the area (These two in conjunction would reveal information regarding the environment).
- Analysis of cultural materials
- Relating culture and environment with each other.

Keeping the above information as the broad spectrum of methodology, specific instances have been put forward in the detailed methodology. To begin with, the Susunia region was selected keeping in mind the interesting characters of the region. The topographic map of the area was studied in details, to finalise the tracks for intensive exploration.

The hill is the vestige of the relatively higher resistance landforms. It is somewhat isolated and spreads out towards the periphery in all direction with variable gradients. From primary observation it was seen that the hill has been exposed to prolonged weathering, mainly of aeolian type. As a result, all the slopes are strewn with scree or talus, which ultimately result in colluvial deposits. From works carried out in other parts of the Old World, particularly in the tropical regions, it has been seen that scree and talus form important ingredients of information in the reconstruction of Quaternary environment.

With this in mind, two axes were placed on the map at two different projections — one on the steep northern slope and the other on the comparatively gentler western section. From

the base of the hill, the two selected axes were extended towards the periphery. On each axis, samples (of scree & colluvium) were collected from an area of 1m × 1m square at an interval of 25m.

The second region studied was the banks of the river Gandheswari, which lies towards the western periphery of the Susunia hill, and flows in a direction parallel with the hill slope. The gravel deposit on the banks of this river were also sampled and studied.

Besides these, explorations were undertaken for finding out the locations where stratigraphic sequences are present. These sections were examined in great details, with the inclusion of thickness texture, colour, composition etc. of the beds.

The final part of methodology included the collection of tools and artifacts with information on the area and stratum of occurrence. But as most of the tools were surface finds from scattered deposits (non-sites) hardly any chronological information can be derived from them.

OBSERVATIONS ON THE GEOLOGICAL ASPECTS

The *in situ* rocks of the Susunia hill are undergoing thorough long drawn and continuous weathering, giving rise to rock fractures of all dimensions. Due to the gradient of the slope, and movement of water along the slope (particularly during the monsoons) these pieces come down as slope wash (or colluvium). As a result, the movement and displacement of the pieces are highly variable. Unlike fluvial action, which gives rise to rolling of the rock particles, in this case the particles move without any alteration of the layout, and either the dorsal or ventral, or at times both the surfaces turn flat. In cases marks of striation are present on such surfaces.

As the slopewash is carried with the effect of low volume of water the resultant velocity of movement is low; and the rock pieces in the colluvium are neither fresh, nor rounded with smooth surfaces. They are of varied dimensions and the shapes are either angular or sub-angular. From reconnoitring explorations it was revealed that the distribution of such deposits were concentrated at the lower reaches forming a thick colluvium at the almost flat foot hill region, where the gradient is minimum.

Keeping in mind the criteria of steepness and gradient of the slope and also the areas relatively less disturbed by human agencies, two different sections along the hill were selected to study the scree deposits along the slope. One of the sections was along the northern slope of Susunia, which has a steep gradient; and the other was along the western slope, which has a comparatively gentler gradient.

THE NORTHERN SLOPE :

Here the talus was seen to be bestrewed undisturbed from the base of the hill to the outer periphery, for a distance of about 100m. The distribution pattern of the talus showed a gradual decrease on both sides of the axis, i.e. towards and away from the hill, the highest concentration being just at the base of the hill. Beyond the periphery of the hill on this side, there are agriculture lands.

The observations made show that as one traverses from the outer periphery towards the base of the hill, the size of the gravels increases. The individual rock fragments show one flat surface with striation marks (sometimes visible by naked eye) while the other surfaces are convex and angular. This is primarily due to the movement of the fragment along the slope due to gravitational pull, accelerated by water action. The fragments or gravels are mostly irregular in form and lack the characteristic roundedness so common in water-borne pebbles. However, from the periphery upto the base of the hill, the gravels hardly show any variation of colouring. Almost all the gravels are provided with a brownish tinge. Minor variations in colour may be due to the type and concentration of the mineral constituents of the fragments under consideration.

THE WESTERN SLOPE :

Here the gravels were seen to be dispersed to a distance of about 150m from the outer periphery to the base of the hill. A situation similar to that of the northern slope, regarding the size and colour of the gravels was seen along this slope also. But this area was much more disturbed by human agencies, due to government afforestation, and construction of a road. An interesting feature, however is the colour difference that is seen markedly from the outer periphery upto the basal portion of the slope. The gravels lying towards the periphery show red patination; and as one moves towards the slope, the colour changes from red to brown to grayish, and finally absolutely white with sporadic patches of red at times.

THE BANKS OF THE RIVER GANDHESWARI :

Beyond the periphery of this slope, there is a metalled road, beyond which lies the village of Susunia and some agricultural fields. Adjacent to these fields, on the western side, flows the river Gandheswari, its left bank facing the Susunia hill. Rock fragments, similar to the above mentioned scree deposits, are found in very small amounts and in a disjointed manner on the agricultural fields beyond the metalled road, and are embedded below the top soil on the banks of the river Gandheswari, on both its left and right banks.

The topmost layer of the banks in this area, consists of a gravel sheet, which is very different from the scree deposits coming down from the Susunia hills. For finding out the extent of the gravel sheet, traction was made — a rectangular tour of the left bank of the river. It was noted that as one moves away from the river course, there is conspicuous change in the thickness of the gravel spread, which gradually decreases, together with decrease in size of the gravels. Instead of sheet gravel, patches of the same are present as one moves away from the river. It is also to be noted that elevation increases as one moves away from the river. Some of the gravels of the gravel spread show marked water rolling.

On the basis of the above observations it may be inferred that the gravel sheet is a product of water action during rainy seasons. But the presence of scree deposits, embedded below this gravel spread and spreading out even upto the right bank of the Gandheswari indicates that the river is younger than the scree deposits. The river itself is most possibly a second order stream, formed by the coalescence of several first order streams, coming down the slope

of Susunia and bringing down the colluvium with them. Hence, the second order stream cuts into the colluvium deposited by the first order streams, (runnels and channels coming down the hill slope) thereby channelising the flow of water to a course different from its original first order course of orientation. This, together with the presence of the same screes on the right bank of Gandheswari seem to emphasise the point that the river post dates the colluvium deposit.

EXPOSED SECTIONS :

Bordering the northern slope of Susunia, lies the village of Siulibona. To the north of the village is a small rivulet Dhonjora, a tributary of the river *Bankajor*. On its bed there are exposed portions of schistose bed rock, with evidences of mottling on parts of the surface.

On the way to the village, a number of naturally exposed sections were seen; of which detailed study was carried out on four such sections, designated as Section I, II, III and IV.

Section I comprised of a silt bed, 150cm. thick. The silt is yellowish in colour and loamy, mixed with occasional grit. This forms the topsoil, and cultivation of crops is done on this bed.

Section II consisted of the same silt bed, but of a lesser thickness — 75 cms.

Section III showed two silt beds, one on top of the other, marked by colour variation as well as differences in composition and texture. The lower bed, (17.5 cm) is grayish in colour, mixed with grit and kankar, and has a comparatively coarser texture. The upper bed (30 cm.) consists of the same silt as seen in Sections I and II.

Section IV demonstrated a schistose bedrock, overlain by a layer of mottled clay (30 cm.). Overlying this is a gravel bed (31.5 cm.). The gravels are angular, ill-sorted and cemented in a grayish matrix.

A further section (designated as Section V) was studied to the west of the hill, along *Gandheswari*, near the village Namo Susunia. The section showed the following order of sequence, from bedrock to the top – (1) Bed rock, (2) Sticky yellowish clay (45 cm) (3) Loose gravel bed intermixed with ferruginous clay.(22.5 cm)

DISTRIBUTION OF SITES :

Together with the observation of geological phenomenon, a reconnaissance of the area was undertaken to determine its archeological potential. This mainly involved the systematic collection of stone tools. In the past, sporadic presence of palaeolithic tools have been reported by different workers (Dasgupta 1967; Ghosh 1962; Samanta 1992). Keeping this in mind, and focussing on the Susunia hill as the central point, a thorough survey of the area was conducted; mostly restricted to the peripheral areas of the hill, extending upto the Gandheswari.

From the Survey, a total of 15 artifacts were collected from 3 different sites, viz. Hapania (HPN), Susunia (SNA) and Namo Susunia (NSA). It is to be mentioned here that all the findings were surface findings. A 1m × 1m trial pit was taken at HPN, but no materials were yielded from it. A total of 4 tools were collected from HPN, 7 from NSA, and 4 from SNA.

ANALYSIS OF THE TOOLS :

All the tools were found lying intermixed with the scree deposits, and no tools came from the gravel sheet of the *Gandheswari* river valley. The form of raw material consisted of suitable pieces of these rock fragments. Hence, all these tools have one flat surface and other convex surfaces. This character gives the illusion of the tools having been made on deliberate flakes. But their difference with flake tools lies in the fact that these tools have been made on naturally occurring flakes, with no skilled workmanship whatsoever on part of the maker. This is better documented on the dorsal surface, where the flake scars are large, deep and not purposive for the shape and function of the tool. In fact, most of the tools do not adhere to any standardized type like hand axe, cleaver, chopper but are just artifacts made on fractured pieces of rock, having one sharp edge. These may be classified as forms falling intermediate between scrapers and choppers.

The 4 tools collected from HPN consisted of three scrapers and one bola stone. Of the three scrapers one was shaped like a hand axe, but the position of the working edge, and properties of the flake scars better indicate the tool to be a scraper, rather than a hand axe. Of the other two, one is a side scraper, and the other a round scraper. All the tools are made on different varieties of metaquartzite.

Of the 4 tools found from SNA, all are side scrapers. These tools are even lighter than those found in HPN, and in size resemble middle palaeolithic flakes. But the crude workmanship rather places them as examples of basal Acheulian artifacts. The raw materials for one of these is quartz, and those of the other three are dubious.

From NSA, a total of 7 tools were collected, of which three are round scrapers and four side scrapers. All the tools are made on metaquartzite. Technologically they are similar to those from the two previous sites.

SUMMARY AND CONCLUSION :

The total process of reconstruction and processual interpretation in prehistory is inextricably linked with the methods of science. For the greater part, processual archaeology is analytic and attempts to have a holistic understanding of spatially and temporally limited segments of the archaeological record, as a necessary pre-requisite for all talk about long-term processes (Paddayya 1990). In other words, scientific method seeks to isolate and explain the relationship between two or more variables. Here, in this present work, the related variables may be identified as the presence of Man, the prevailing environment, chronological significance; and cultural continuity, change and variation.

From the results obtained, the primary inference that may be drawn is the doubtless presence of Man in the vicinity of Susunia hill, as substantiated by the occurrence of sites or scatters.

Analysis of the tools collected show that there was definite selection of raw materials by prehistoric people. Whatever tools have been found, are made on quartz/quartzite variety and not on any other rocks which were also available in the area. Also, while selecting the raw material, the shape and size of the same were also taken into consideration. Typologically, all

the tools (except one) may be classified as scrapers and functionally at least, they must have been used for scraping purposes. Strangely enough, no typical hand-axe or cleaver has been found; although two are of shapes tending to that of hand axes. Technologically, some of the tools are crude, some are also unfinished, denoting a basal Acheulian phase of culture. But some other tools show extreme controlled flaking and may be classified as belonging to a later phase of Acheulian. Hence, taken together all these tools which may speak of an evolutionary sequence of the tools, that have been found within this area. Hence, it is possible to trace either any developmental characters of culture or the possibility of diffusion and culture change.

From the stratigraphic sections and arrangement of colluvial deposits, the palaeoclimatic sequence may be understood. The absence of any water worn pebbles in the area omit the possibility of the presence of major river action in the past. The main river here at present is *Gandheswari* – a second order stream, which came into existence after the colluvium had already been deposited by the first order streams.

From the sections, however, some amount of water action of greater volume and velocity may be inferred from the presence of gravel bed on top of the mottled clay (Section V). But here again, the lack of water eroded pebbles seem to indicate that they were probably deposited by a major water action, but did not stay underwater long enough to bear the signatures of hydro-erosion. The increased volume of water may be correlated with a phase of relatively high amount of precipitation. Likewise, the silt bed denotes periods of relatively drier climates. It is highly probable, that due to freshets and floods by the hilly runnels sections of the stratigraphic sequence have been eroded away. For this reason, tools have also not been found from these areas.

Finally it needs to be mentioned that the above inferences point to the fact that prehistoric population in this area was not dependent on river water, but rather on the seasonal first order streams coming down the hill slope. It is possible that during the rainy seasons, prehistoric men did inhabit this area, but with the onset of drier phases, they chose to migrate to other areas.

It may be conceded that this work is only a beginning, helping just to point out certain climatic and cultural aspects. But in truer sense this preliminary survey has rather succeeded in raising many questions and bringing the complexities in the forefront with regard to the relevance of Susunia in the domains of prehistory. Hopefully this will act as an impetus to carry out greater amount of systematic research work in this area.

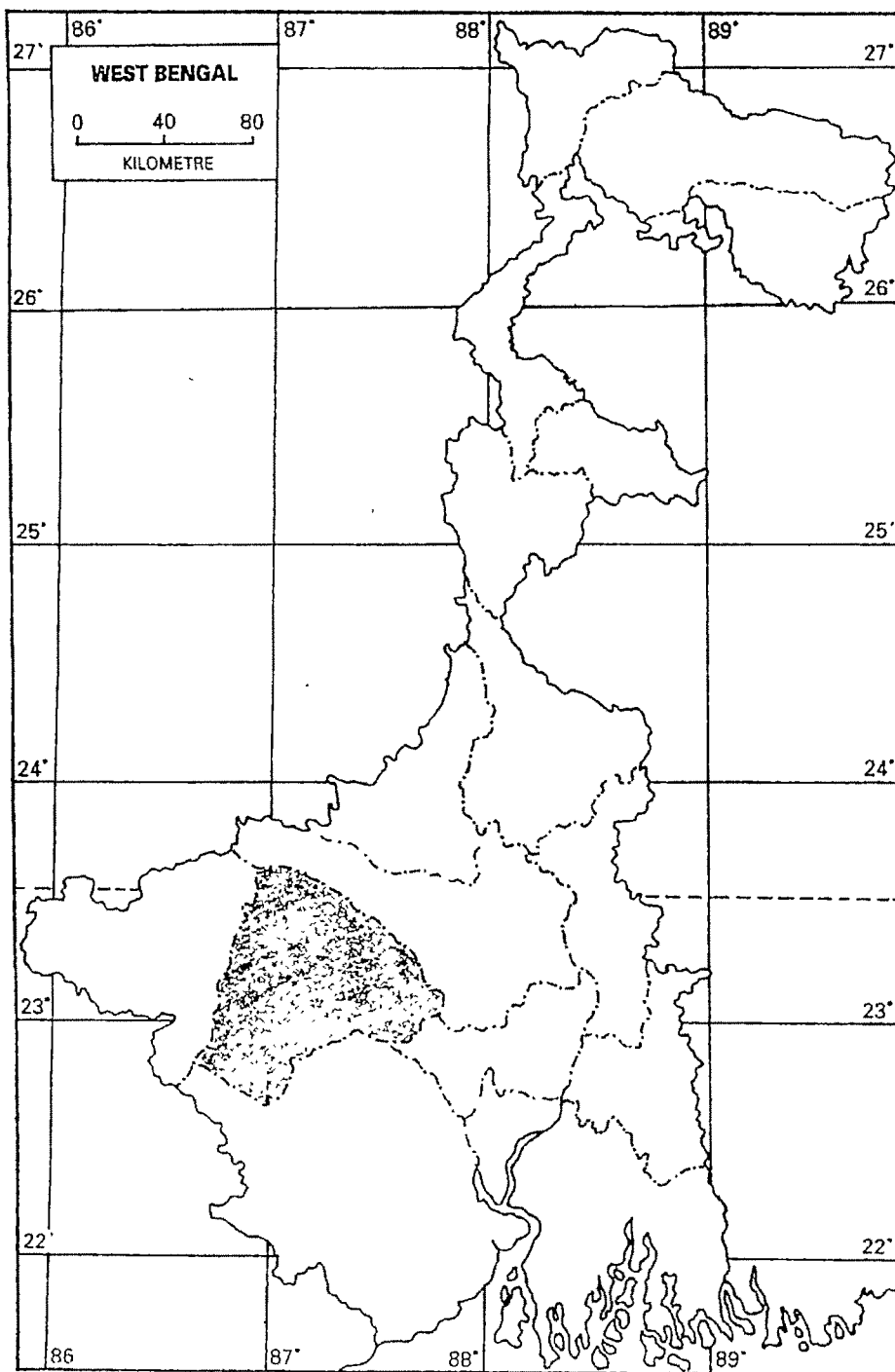
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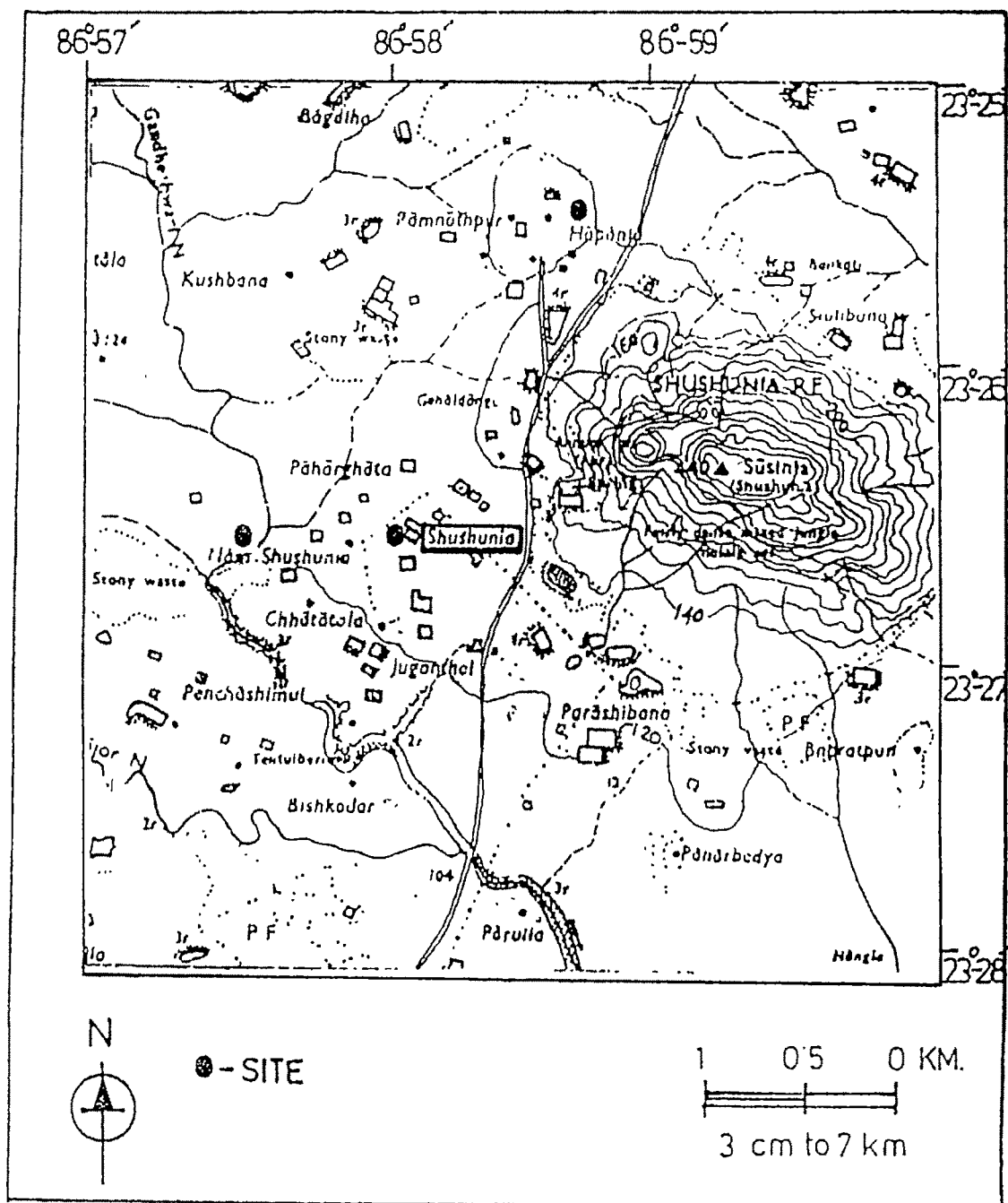
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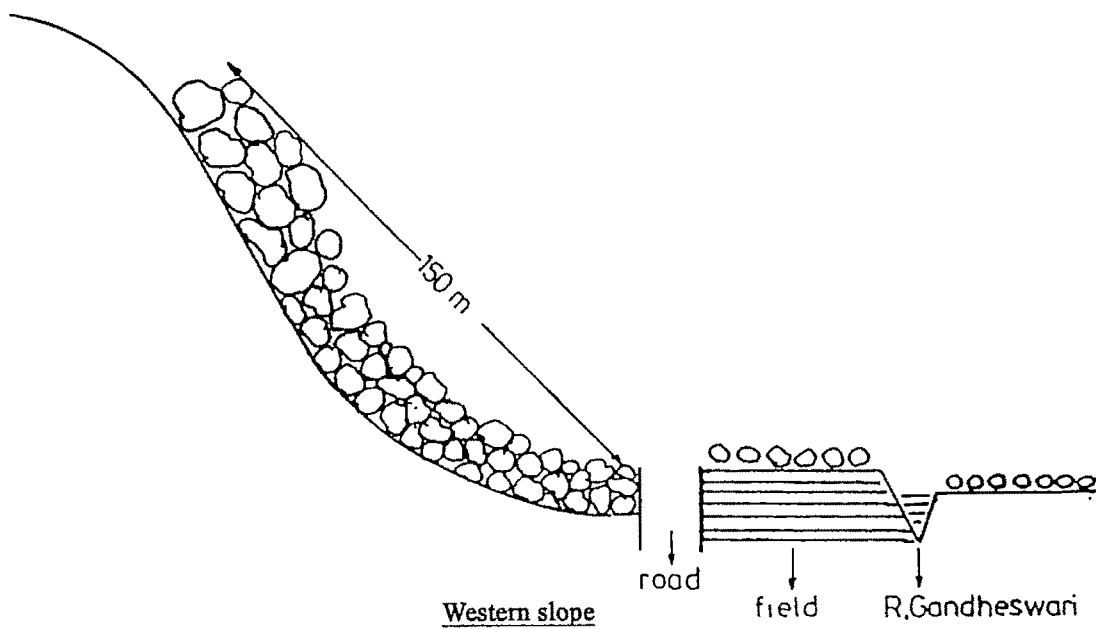
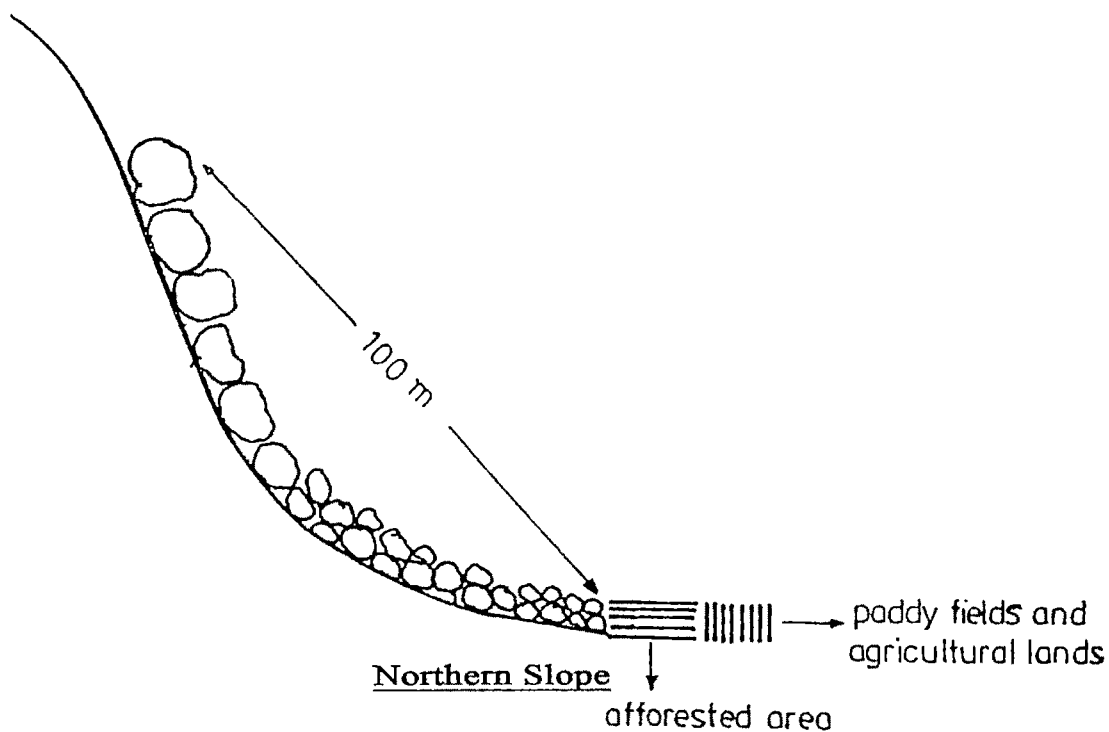
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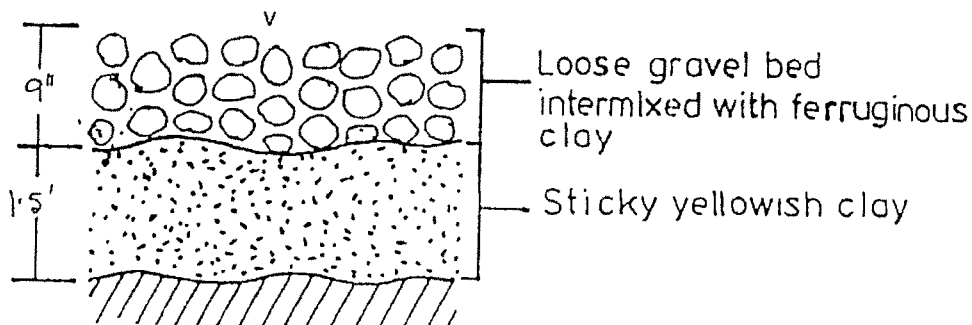
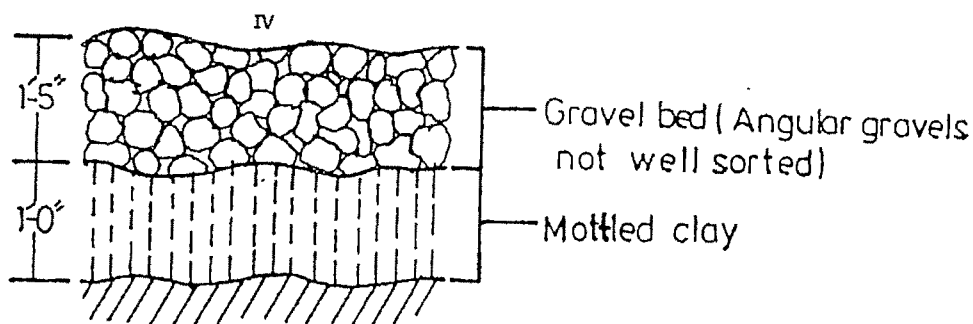
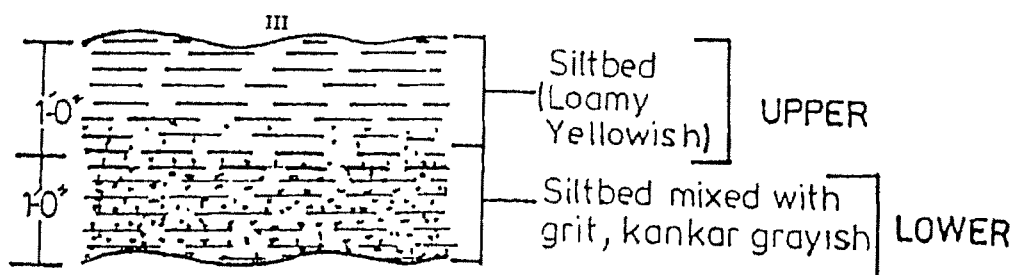
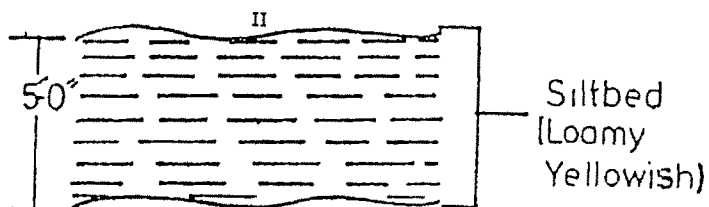
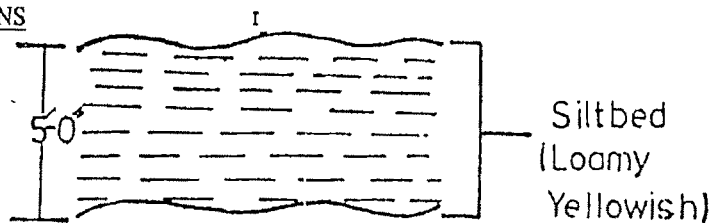
WEST BENGAL

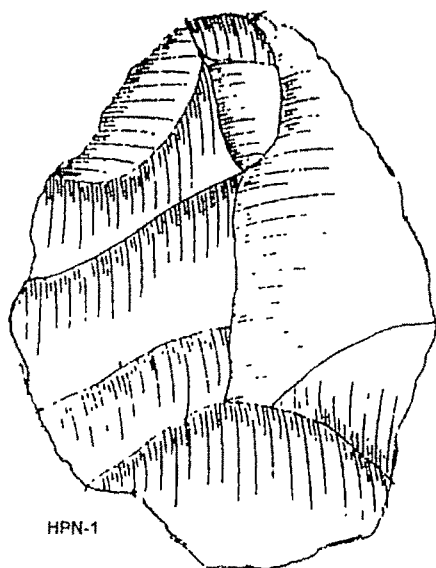




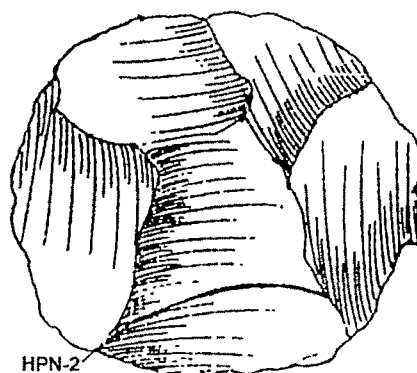


SECTIONS

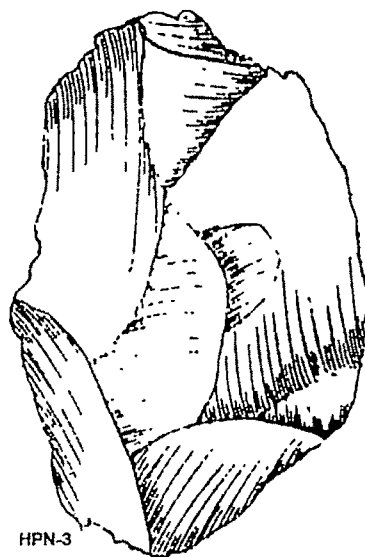
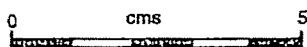




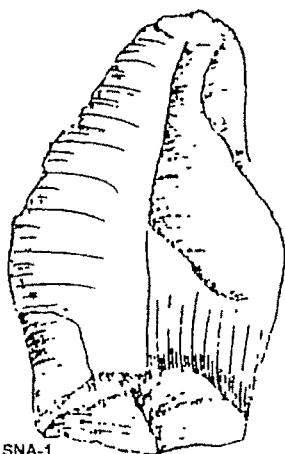
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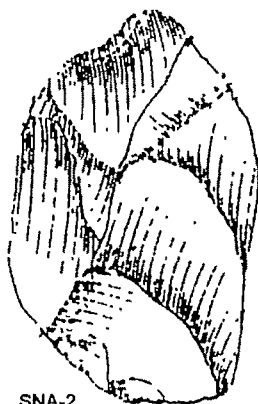
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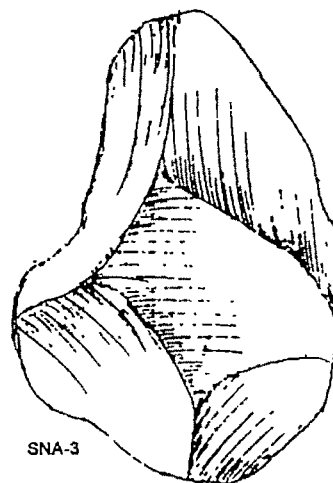
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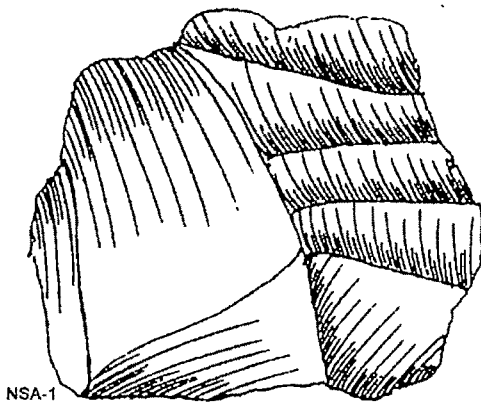
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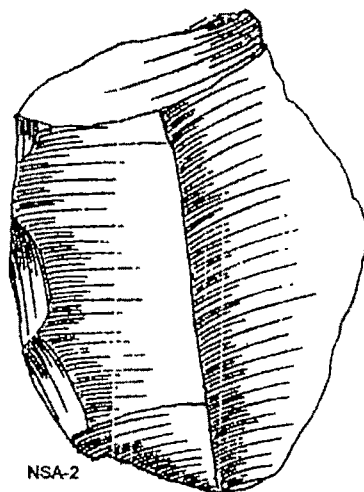
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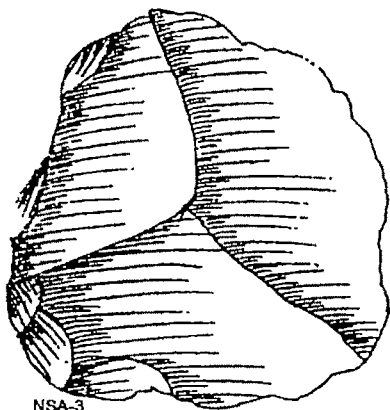
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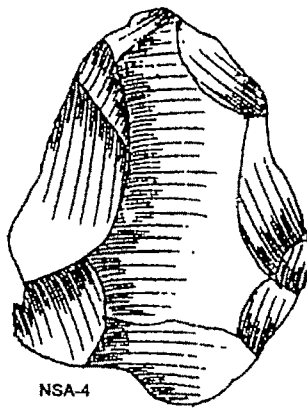
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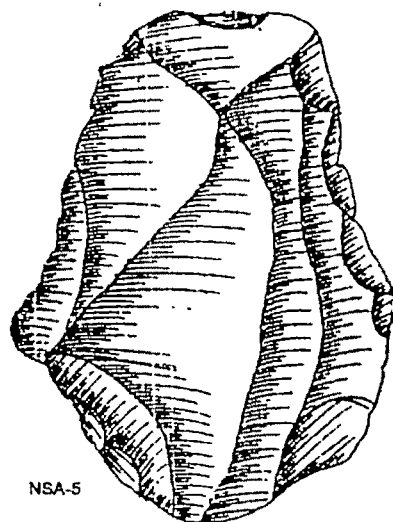
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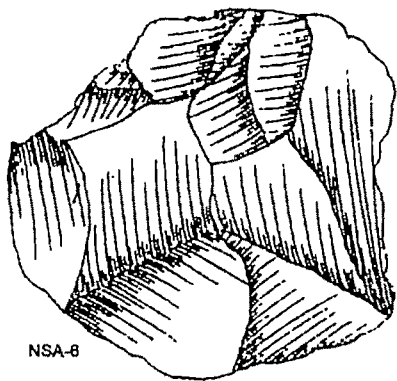
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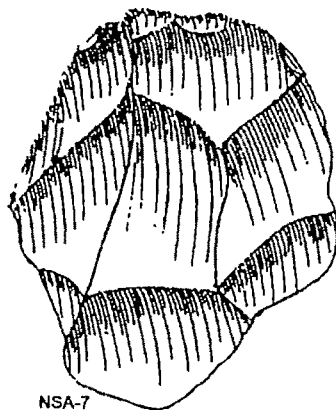
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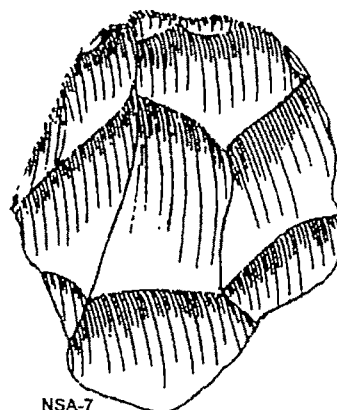
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NSA-7



NSA-7

PALAEOLITHIC CULTURES OF WEST BENGAL : AN APPRAISAL

Bandana Chakrabarti

During 1980s and onwards a number of prehistoric sites have been discovered in south western part of West Bengal. Systematic explorations at different spells resulted in discovery of prehistoric cultures embedded in the Pleistocene alluvium deposits of different braided palaeochannels of peneplain terrain of the upland Bengal. The cultural evidence comprises Early palaeolithic hand axes, Middle palaeolithic industries, abundant Late Pleistocene flake and flake-blade tools. A sequence of palaeolithic culture, associated stratigraphic deposits in the back drop of geological time has been attempted in the present paper.

Key words : Peneplain; Stratigraphy; Hand axe; Scraper; Flakes; Blade.

INTRODUCTION

The earliest discovery of palaeolithic implement in the form of three quartzite handaxes was made in 1865 by Ball from Ranigunge Coal Field area and from Bankers District of West Bengal. All the specimens are surface finds. Afterwards a summery on the scope of pre-historic research was made on a bigger canvas by Chakladar (1941, 1942, 1952). Explorations have been started in different parts of West Bengal by a team from the Archaeological Survey of India under the leadership of V.D. Krishnaswami, and Krishnaswami surveyed the Kangsabati Vally and its tributaries, the Kumari and Jam which pass through the districts of Bankura and Purulia. Sites have been discovered, palaeoliths are found in the gravel deposits. An exploration work was also carried out in Bankura by the department of Anthropology, Calcutta University (Sen et al., 1963). The implementiferous sites geographically can be grouped into two regions. The first lies in the Dwarakeswar Valley near Bankura Town. The other region lies in the valleys of the Kangsabati and the Kumari. The sections reveal a general sequence of alluvium and detrital laterite with gravels (and associated ferruginous soil) underlain by older rocks. The laterites are exposed either on the surface with gravels or are underlain by soil cap. It appears that the implements occur in two horizons within the laterite complex, the earlier one with choppers from the gravelly laterite, while the latter is from the murum,, yielding mainly choppers, bifaces and scrapers. Dasgupta (1964, 1981) also reported some pre-historic findings of Neolithic stage; Chalcolithic stage, mainly from the plateaupeneplain region. A famous chalcolithic site, 'Pandu-Rajardhibi' has been reported and studied by him. Lal reported another important site, Birbabhanpur (1958) from the fringe of the area.

The earlier works about the discoveries of numerous pre-historic stone tools confirm the various stages of their manufacture. The palaeolithic implements of these findings are mainly

handaxes, choppers, cleavers and scrapers. The materials used for tools making are quartzite, quartz and sandstone.

In recent years, Basudih, an important Acheulian site West Bengal has been reported by Bhattacharya (1989). As a result of field work between 1978 and 1989, which has subsequently been enriched by a large and more vatted collection by the present writer pointing out the prehistorical importance of the plateau-peneplain region of West Bengal and the findings definitely reveal the existence of a long cultural heritage of West Bengal which dates back to Pleistocene time. This site was revisited and the collection was re-examined by the author (Bhattacharya and Chakrabarti, 1990, Chakrabarti, 1990).

GEOMORPHOLOGICAL BACKGROUND

In many respect structural landscape of West Bengal shows broad similarities with that of the Indian subcontinent as in both the cases terrain structure primarily involves three basic patterns (1) Alpine fold belt of relatively young rocks e.g. the great ranges Himalayas (2) A large tectonic depression lying south of the mountain ridges which contains very large alluvial tracts and (3) An area of very ancient rocks lying south of the great plain e.g. Peninsular India. Climatic condition of such differential topography of the state produce distinct ecozones : semiarid, semiarid, steppe, humid subtropical and truly tropical forest.

When the distribution of the cultural traits superimposed on the geomorphological and geoclimatic maps, it appears that, there are certain major "core areas" isolated or semi-isolated from each other by physical boundaries i.e. mountains, hills and forest as well as cultural boundaries i.e. races and languages. The hilly and mountainous terrain of North Bengal and the extension of Chottanagpur plateau extending from Rajmahal hills and escarpments to undulating region; of South West Bengal are such core areas of "isolation" or "semi-isolation" where earliest cultural relics of mankind can be traced. Therefore, at the very outset brief review of geomorphological and geological setup of the area under study is important in order to evaluate the prehistoric culture which will be gradually traced to evaluate the prehistoric culture which will be gradually traced by systematic analysis of the recent findings of prehistoric cultural artifacts mainly the palaeoliths.

In fact, it is the isolated or semi-isolated ecozones which were inhabited by the prehistoric men and the unperishable records of mankind of the lithic periods have been retrieved from such an ecological zone like plateau-peneplain region of the South West Bengal. A brief but comprehensive geomorphological description of this region is being discussed because here around this area of West Bengal.

PLATEAU-PENEPLAIN REGION OF WEST BENGAL

On the basis of the geomorphological study by Chatterjee et al. (1988) and Sharma (1978) it can be stated that the South-West upland Bengal can be referred to as one compact geographical unit lying between two different geographical zone, Chotanagpur plateau-peneplain region (85050' - 87030'E and 23045'-22030'N) and bounded by the eastern most parts of Ranchi plateau and Dhulbhum upland /to the west and Rupnarayan plains to the

east The Pereshnath Sills and the adjoining uplands followed by Jamtara uplands, succeeded by the Mayurakshi plain lying in west-east direction, can be considered as the northern boundary. To the south the area is bounded by the eastern extension of Dalma range, Dhalbhum uplands and the southern parts of the Rupnerayan plain. The area is rugged in appearance with deeply weathered surface as dissected by runnels, tributaries and streams. The general surface of the entire region is that of continuous layers spread over wide area, swelling up here and there giving an undulating scene, which becomes more prominent and increasing towards west and decreasing towards east. In the west this region is bordered by the hills and in the east it merges with plain. The elevation varies from 300m to 50m with variable slopes towards the east. On the basis of the landform assemblages this area can be broadly divided into three sub-regions as follows:

1. Plateau of Purulia : 300m - 150m
2. Piedmont peneplain 150m - 100m
3. Peneplain 100- 50m

LITHIC INDUSTRIES

A total number of 642 classified artifacts (including cores and flakes) have been considered from 19 sites. To define and analyse the different lithic implements, terms for conventional tool type have been used.

From an analysis of the artifact data, it is found that there are three cultural types such as lower Paleolithic, middle Paleoliths and upper Paleoliths. Each of these cultural phases characterized by some dominant types. From these in-situ specimens it is found that the occurrence of types has correlated with the stratigraphy.

TYOLOGY

The sites of different area of plateau-peneplain region of West Bengal, particularly the sites of Gandheswari Valley, are very rich in the occurrence of archaeolithic artifacts. During the different explorations a large number of archaeolithic types has been collected. A total number of 642 palaeoliths has been selected with special emphasis on in-situ finds and the condition of preservation. The typological description, which focuses the nature of some Paleolithic types of West Bengal.

The total tools selected, are primarily divided into three main cultural phases, viz. lower Paleolithic phase dominated by chopper, hand axe, scraper, point, discoid, and knife and upper Paleolithic with few blades, burin and awl.

Table 3.1 shows that out of 642 sample tools lower Paleolithic types claim the largest proportion (353, 54.98%) the proportion is comparatively less in middle palaeolithic types (278, 43.30%) and is negligible in upper Paleolithic types (11, 1.72%)

In the lower Paleolithic culture handaxes (177, 50.14%) and scrapers (70, 19.83%) show the first and second maximum frequency respectively, where chopper (35, 9.92%) and cleaver (27, 7.65%) show lesser frequency in occurrence.

In the succeeding middle palaeolithic stage the older type such as handaxes (60,21.58%) still continues though lesser frequency. But in this stage scraper which can also be found in earlier culture becomes dominant type (143, 51.44%). The other types in this stage are pouts (19,6.84%), discoids (16,5.75%) and knives (5,1.79%). The frequencies of associated cores (17,61.31%) and of flakes (18, 6.47%) are not negligible.

In the upper palaeolithic stage, the types constitute only 11 specimens (1.725%). They are sometimes associated with the middle palaeolithic types as well as same microlithic ones. The new types such as blade (8, 72.73%), and (2,18.18%) and burin (1,9.09%) are found though negligible in number of occurrence but are significant as they reveal the emergence of a new stage.

In palaeolithic stage of human culture of this area handaxe and scraper seems to be the dominant types constituting 36.93% and 33.17% of the total collection. Choppers and cleavers, claim the next positions yielding 5.45% and 4.21% of the total collection respectively.

DISCUSSION

The present work is mainly confined to the districts of Bankura, Purulia Midnapur in West Bengal of Eastern India. Intensive work has been carried out in this region from the year 1989 to 2000, a continuation of previous work in a more comprehensive form with a larger area.

The present investigation has brought to light a succession of palaeolithic culture (mainly the lower and middle palaeolithic cultures) in West Bengal from the recent findings within the chronological framework of the Pleistocene. This has been well evidenced by a large number of archaeological data collected from nineteen sites spread over the aver-valleys of West Bengal. A considerable proportion of the implements were found in-situ in clear stratigraphical contexts.

Concentrated occurrence of palaeolithic is observed in three major zones, viz. Gandheswari valley, Kumari-Kangsabati valley and tarafeni valley. Of these the first locality is of major importance. The clusters of sites in these three zones specially in Gandheswari valley suggest a favourable habitat of early man in West Bengal with appropriate environment and availability of food and raw material. The occurrence of lithic industries is found to be particular conditioned by the presence of relevant raw materials.

The present study reveals geochronological contexts of Acheulian culture (Lower palaeolithic) clearly in the selected localities of the upland Bengal. It is found from the field study that there are distinct stratigraphical horizons indicating-variable climatic events in different time during the Pleistocene. It appears from the study on sedimentation process in stratigraphical sequence that there are two distinct gravel beds separated by silty or clayey beds. One of the gravel beds is sorted which indicates dominating fluvial action. The gravel beds may indicate wet and humid conditions which prevailed at different time periods of Pleistocene. Intervening beds between the gravel layers the loamy sandy soil were of Aeolian

deposit. Such depositions indicate drier and hater climatic conditions during interpluvial phases of Pleistocene. There is a distinct horizon of lateritic layer which was famed in the period, especially, at the wet and humid conditions of the fluvial phases of Middle Pleistocene time. In the composite stratigraphy prepared from different sections documented from different places of upland Bengal, especially along the river valleys, streams and tributaries, it was observed that there are seven or eight distinct strata composed of either gravels, sandy and silty soil, of sandy smaller with gravels, or secondary laterite deposit containing in some places with smaller gravels. Most of these beds yield tools of palaeolithic cultures. The Acheulian tools we mostly found in these stratigraphical context: (1) Laterite bed, (2) Sandy clayey matrix. Those found from the lateritic bed or from the clayey matrix seems to be earlier than the kankar bed.

The bed of yellowish or reddish loamy soil are later. In fact the Acheulian tool typology also reveals differential attributes and in quantitative analysis it has been found that tools assemblages of Acheulian are of heterogeneous character. It can be easily differentiated into three distinct classes of Acheulian tools so far typology and technology of tools are considered. Chopper, hand axe (and rarely cleaver) show comparatively cruder technology and found that either in sandy clay matrix or in lower bed of detrital or in lower bed of silty matrix (Kumari-Kangsabati Valley). This class of Acheulian industries of Acheulian is mainly reported from Tarafeni Valley, Gandheswari Valley, Nangasai and Dwarakeswar Valley. The second class is handaxe, (scraper) and cleaver assemblages. This class of industry has been found from many places including Gandheswari Valley, Plateau of Purulia (Balarampur) as well as from Tarafeni Valley. The third Acheulian industry comprises finely made handaxe, medium and smaller sized scraper, prepared flake (point, discoid and knife) which indicates a developed phase of Acheulian culture where in middle palaeolithic tool types are sometimes conspicuous by their presence. This third Acheulian represents a transitional stage from lower to middle Paleolithic. Such late Acheulian industries have also been reported from many places of Bunkum such as from the sites of Gandeswari Valley, from the sites of Kumari-Kangsabati Valley as well as from the Tarafeni Valley.

CULTURAL SEQUENCE

Typologically, the palaeolithic culture is found to follow a developmental pattern, sometimes the occurrence of evolved implements is found to be associated with crude forms but its reverse has not yet been observed in any sites. This process of development includes a continuity of certain types and techniques as well as cultural or technological changes.

However, Geochronologically, stratigraphy and sedimentary deposits and sequence of prehistoric cultures of the studied area of West Bengal can be correlated and summarized in the following tables.

Geology & probable Age	Stratigraphy	Sedimentary Deposit	Culture
Early Holocene	Sub-recent alluvial deposit	Dominated by Aeolian deposit	Microlithic
Terminal Late Pleistocene	Yellowish loamy soil and kankar		Flake-blade
Late Pleistocene	This gravel in silty ferogenous matrix	Dominantly fluvial deposit	Middle palaeolithic and Acheulian
Late Middle pleistocene	Yellow silty soil	Dominated by Aeolian deposit	Acheulian handaxe cleaver and scraper
Middle pleistocene	Lateritic concretion with reddish gravel	Dominantly fluvial deposit	Archeulian and pebble chopper
Terminal Lower Pleistocene	Cemented gravel with concretionary matrix	High energy fluvial flow	Pebble tool (?)
Tertiary	White micaceous clay and bed rock		

CONCLUSION

The contemporaneity of various morpho- stratigraphic units respectively with palaeolithic and microlithic cultures in the studied area has been matched. Though the remains of older culture are found in comparatively younger geological sediments as the fluvial process bring down the older materials and deposit those in lower levels after brisk reworking. Similarly, the sites of younger culture have been located on comparatively older morpho stratigraphic surfaces because of several factors like stability of sheltering ground, availability of forest produces and near by water resources.

Field research in West Bengal may in future extended to the studies on latter lithic cultures such as Microlithic, Neolithic stages which have been reported from different places of West Bengal. Anthropologically, this plateau-peneplain region of West Bengal is the homeland of some primitive tribal people like Santal, Bhumiji, Mundas; etc., (who are supposed to be autochthones) with their diverse material culture and it is an interesting field for linking up the late pre-historic culture with the tribal culture of the region.

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NEOLITHIC CHALCOLITHIC AND EARLY METAL AGE CULTURES IN WEST BENGAL

Manibrata Bhattacharya¹

Neolithic and post -Neolithic cultural evidence of prehistoric men have been found from diverse ecozones of west Bengal. Such diverse ecozones of West Bengal can be classified on the basis of geo-lithological characteristics into three distinct geomorphological units : northern mountain complex of the extension of Alpine fold (the - Himalayas), followed by Gangetic alluvial plain and extension of the peninsular shield. Each having its own distinct geo-lithological characteristics with well marked geomorphological components cuts across the administrative boundaries of the state. Therefore, the states are not that relevant in the study of prehistoric annals of the country. Rather, geo-physiographic units can be considered as natural units in understanding cultural remains of the earliest man. Cultural relics of Neolithic men in Eastern India was initially started by the British administrative staffs and scholars as early as the middle of nineteenth century from diverse ecological zones. The earliest book on the assorted prehistoric artefacts was published at the beginning of the twentieth century from Kolkata erstwhile Calcutta. Thereafter a number of publications have been appeared by different scholars. But a comprehensive accounts on Neolithic and post- Neolithic cultures of this region has been seldom attempted- A brief appraisal on Neolithic and post- Neolithic cultures of the state has been discussed in the present paper-

Key words: Celts, Darjeeling Himalayas, South West Bengal. Ch'u-shia-ling, Hupei Luang-shah, Szechwan, PanduRajar Dhibi, Calcolithic, Metal objects.

Cultural evidence of Neolithic have been reported from all over India and West Bengal is not an exception. The Neolithic tool was first discovered in 1842 from Raichur district, Karnatak. In 1865 H. P. Le Mesurier collected another Neolithic celt from Uttar Pradesh. Sir John Lubbock'collected the jadeite celt from upper Assam and published a paper on stone tools of Assam in 1867. The Neolithic tool from The eastern region was collected by Captain Beeching from Singbhum, Jharkhand. A number of European administrators and scholars collected a number of relics belong to Neolithic type from different parts of the country. The study on typo-technology on Neolithic Celts from West Bengal was made by anthropologists from the department of Anthropology (Sen 1948 and Chakladar 1952). Systematic studies on typology and geographical distribution were attempted separately by Dani in 1960. and Krishnaswamy in 1962. Sankalia (1974) has given a separate status for the Neolithic industries of Bengal - Jharkhand (erstwhile Bihar) region and assigned as pure Neolithic culture. However Allchin (1992) considers Neolithic culture of Eastern India as an extension of the South India.

The term Neolithic was first used by Sir John Lubbock in 1865 who had in reality expand the Three Age System originally proposed by Thompsen, a Danish scholar in the early nineteenth century when he classified the prehistoric evidence on the basis of technological characteristics (Daniel 1952).

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The presence of Neolithic stage of prehistoric culture is well established in West Bengal. It was preceded by Mesolithic culture. But the link between the Mesolithic and Neolithic culture is lacking in geo-stratigraphical context.. Though transition from Mesolithic to Neolithic stage is claimed to be taken place at Belan (Sharma 1980), it raises questions as the use of pottery is said to be associated to this transitional phase at Belan valley as early as ninth/ eighth millennium B.C. It is widely familiar that both in West Asia and in East Asia, except in Jomo culture the manufacture of pottery had started later than the eighth millennium B.C. However, none of the excavated Neolithic sites in India has been dated beyond three thousand years B.C. In fact there are three eco-zones in the world where the earliest dates of Neolithic cultures have been established. The first one is at Abu Hureyra, north Syria, which is dated back as early as eight thousand five hundred B.C. (Moore, 1975, 1983). The second one is situated in South East Asia. A transformation of Hoabianian to Neolithic stage can be traced perfectly at Spirit Cave, and it is suggested that Hoabianian is evolved into Neolithic sometimes during 6000 to 5000 yrs B.C. (Bellod 1985). The earliest Neolithic culture in china are Pei-li-gang, and Da-di-wan of the Yangtze valley which are dated to 6000 years B.C. (Zhao and Wu 1987) In South Asian context the earliest site is Mehargarh which is situated in Kachin plane of Baluchistan and belongs to 6000 yrs B.C. In India Koldihwa and Mahagarh may be dated between 5440 and 4530 B.C. (Not calibrated and remains doubtful) but the possible date is suggested by Allchin 1500 to 1600 B.C. The Neolithic sites of Chirand in Bihar Plane is dated 2000 B.C.. In fact the transition from Mesolithic to Neolithic remains a problem in Indian context.

Recent explorations along the river valleys of South West Bengal have resulted in the discovery of a number of ground and polished celts. As well as some broken ring-stones. Microliths have also been found to be distributed in clusters from the same places wherefrom the celts were collected. Although it is difficult to distinguish the separate horizons for two distinct traditions, the celts and the microliths, but the observations at some places seem to suggest that the celts occur in the sticky grey soil whereas the microliths, in the reddish brown soil. Following Krishnaswami (1960) it can be assumed that there is a protoneolithic phase which appears to form the basis of neolithic culture.

As there is no stratified primary or secondary neolithic site in West Bengal, Neolithic culture of the state is characterised by the use of ground and polished stone tools. Since, the beginning of the twentieth century the polished and ground tools have been found from different places of West Bengal. The collections made by a number of scholars from different places amount more than two hundred ground and polished stone celts distributed in upland Bengal. Recent explorations along the valleys of the Kangsabati river and its tributaries have also increased the strength of the total collections.

The neolithic celts are found to be distributed in two clusters. One is in the piedmont region of North Bengal and the other in the plain of South West Bengal. Those found from North Bengal are typologically similar to the collections of North East India commonly known as Assam Neolithic. The collections of South West Bengal have very close affinities

with those found from the neighbouring areas of Bihar and Orissa. It appears that the clustering of the cultural relics and environment forms two distinct geocultural zones. But a sharp distinction is very difficult to make as Bihar, Bengal and Orissa assemblages include a number of Assam Varieties.

Geographical context of Neolithic culture is mainly confined to the rugged area of Rarh Bengal ($86^{\circ} 87^{\circ} 30'$ N and $240-22^{\circ} 30'$ N). In fact, this rugged region can be divided into three sub-regions on the basis of structural features of landscape including elevation; plateau of Purulia upland (300 — 150m.), piedmont paneplain (150-100m.) and paneplain (100 — 50m.). The undulating surface dotted with spurs of hills and monadnocks is covered with red and brown soils which are originated from the deeply weathered basaltic parent materials. The undulation is caused by a process of degradation and the Pleistocene terraces can be marked above the recent flood plain of younger alluvium. The alluvium comprises lateritic residual soil, gravel, *Kankar* and silt. The terrain is highly dissected by numerous runnels, channels, streams which ultimately lead to the major drainage system such as Mayurakshi, Ajay, Damodar, Rupnarayan, Kangshabati, Suvemarekha. The tectonic framework reveals that the exposed shield of 'Chotanagpur massif covers Purulia and part of Burdwan, Bankura, Birbhum and Midnapur districts. This zone is immediately followed by buried shield and the transitional zone.

In North Bengal the Neolithic Celts are mostly found in the Darjeeling Himalays. First Neolithic artifacts were collected by Walsh as early as 1865. The Darjeeling Himalayas is a sub-region of the Eastern Himalayas. It lies between 86° — 88° E and the soils are mainly alluvial at the foothills and silty loam in the hills. The sub-region can be physio-geographically divided into five altitudinal zones as follows:

Deep gorges of the Duars (upto 1000m.): The landscape is conspicuous with the presence of deep gorges and sharp water partings; topography is rough and covered with tropical forest where games of different sizes are abound. The climate is warm and humid i.e. warm tropical and very unsuitable for human habitation.

Zone of optimum belt (1000-2500m) : The landscape is dissected with numerous well developed river terraces. The climate is cool and up to 1200m. warm tropical condition prevails where it is cool for those places which are situated between 1200m and 2500m. On the slopes and terraces cultivation has been easily carried out which leads to substantial growth of settlements. At this zone is inhabited by large population, there are fewer forests.

Rugged zone with coniferous forest (2500-3000m): The landscape is rugged one with deep river gorges and mostly covered with coniferous forest. The climate is cold and only in some favourable places cultivation can be seen along with scattered homesteads.

Alpine meadows (3000-4000m): The landscape is very rugged and only the alpine meadows facilitate seasonal grazing of the cattle; semi-nomads live here temporarily as the climate varies between cold and arctic.

Rocky terrain (above 4000m) : The rugged rocky terrain capped with snow and only in a few limited spots there are pastures during summer where temporary settlements can be

traced for only the time of visit of the semi – nomads. Above 5000m. the terrain is very rugged one and appears empty regions of rocks, ice and glaciers.

Of the zones described above, the second one, the 'optimum belt' lies between 1000m and 2500m. is important from anthropological point of view. This is the belt where prehistoric tools, tribal population with their simple technology adaptive to favourable climatic condition for human settlements are found. This belt is exposed to the direct impact of heavy monsoon across the open gap between the Rajmahal and Shilong plateaus (Spate: 1954). Annual rainfall is very high (300-500cm.). This high rainfall coupled with other geomorphological and biotic factors have resulted in the growth of tropical forest and vegetation including several pieces of bamboo. The vegetation patterns vary according to the nature of elevation of the terrain.

PREHISTORIC ANTIQUITIES: NORTH BENGAL

A large number of neolithic celts were collected from hill slopes of Darjeeling and Kalimpong. The prehistoric cultural antiquities found from the Darjeeling Himalayas are mainly ground and polished axes, adzes and occasionally chisels including a few large and flat celts with or without perforation. The raw materials used are mainly quartzite, phyllite, sandstone, shale and locally available rocks. The collection also includes one jadeite implement which is rarely available locally.

Typo-Technological features of the ground and polished lithic tools collected from different places of the slopes of the Darjeeling Himalayas seem to belong to early historical period. From morphological typo-technological point of view there are two series of lithic celts of which one seems to second millennium B.O and other to early Christian era. Besides, they suggest affinities with the Neolithic cultures of China and South East Asia. There are also a few common elements between the ground and polished celts of Darjeeling Himalayas and Bengal-Bihar region of Chhotanagpur plateau. The tools are mostly polished but traces of chipping and pecking are also found. Sawing technique can also be traced in manufacturing the shouldered celts which are not very rare. The size of the tool assemblages shows a great range of variation : less than 3cm in length and weight varies from less than 20 gm to 290 gm. One celt was collected from the plain of North Bengal at Banagarh in pre-Sunga level (Goswamy 1948)

On the basis of morphological and typo-technical features the entire collection can be classified into nine groups which in their turn can be broadly divided into series A and series B. Series A tools are largely characterized with the neolithic Celt attributes of North Eastern India and Eastern India and those of series B the attributes of Chinese neolithic of later Holocene period and early Christian era.

SERIES A

The artifacts belonging to this series are by no means heterogeneous and classified into five groups as follows :—

Group I: Small and medium sized tools, average length, breadth and thickness varies 3-5 cm, 3-4 cm and 1-6 cm respectively: forms are mainly triangular, subtriangular,

- trapezoidal and quadrangular or rectangular; butt-ends are mainly rounded or pointed, square or obliquely straight and elliptical. The ratio between axes and adzes is about 1:1. The group constitutes more than 80% of the total collection.
- Group II: medium sized tools, 7cm average length, mostly trapezoid or sub-triangular adzes with lenticular or elliptical cross-section, constitutes about 15% of the total collection.
- Group III: Large and flat celts (mostly axes), 1 cm. average length, trapezoid with elliptical cross-section, occur in limited number.
- Group IV: Grounded and polished chisels which are rarely occurred.
- Group V: Shouldered celts occurred but not in large number and in making such tools sawing technique was rarely used.

SERIES B

Tools of series B rarely occur in Indian neolithic context. They show distinctivity in respect of raw material used, morphology and typo-technological characteristics. On the basis of their attributes they are further classified into four groups.

- Group VI: Large and flat celts, highly developed prototype of metal celts, fewer in number.
- Group VII: Perforated celts—only a few pieces of stones have been collected. The cells are highly polished.
- Group VIII: A few pieces used as polished rubber stones.
- Group IX: Highly polished ribbon-like chisel.

Typo-technology of the celt assemblages : On the basis of size, Group I can be divided into two sub-groups—small and medium.

Small size : The size of the tools in average has a length and breadth of 3cm each and thickness around 1 cm; Shapes are triangular, subtriangular and trapezoidal. Twenty percent of the total collection belongs to this variety. Celts are of two types—axes and adzes. The axes have two groups-triangular, sub-triangular and rectangular slightly or markedly convex thick butt with trapezoidal cross-section. The square or rectangular one has trapezoidal or rectangular cross-section. Adzes in most cases have a breadth which is greater than the length of the tool. The common shapes are trapezoidal and sub triangular, butt is thick rectangular or elliptical, retaining pecking marks, but grinding and polishing techniques are found in most cases. The cutting-edges are mostly straight or slightly convex. The cross-section is elliptical or rectangular.

Medium size: This group constitutes about 60 per cent of the total collection, average length, breadth and thickness are 8 cm, 5 cm and 1.6 cm respectively. The ratio of the axes and adzes belonging to this variety is 2:3. There are two distinct sub-varieties: (a) one is elongated and the other (b) is broader and slightly narrower. Frequency of the elongated specimens is higher and the axes are relatively more in number. The axes of elongated variety have rounded butt-end with the marks of pecking and grinding at the thick butt end. The cutting-edge although produced bi facially but one surface shows more beveling than the

opposite one. Sides are polished or ground, convex and bear marks of hafting. The cross-section is usually elliptical. The frequency of adzes is more than the axes. Some adzes are slightly irregular in shape, and bear considerably marks of chipping and pecking; grinding and polishing are also found. In all the cases the cutting-edge is polished and secondary polishing can also be traced. The cutting-edges are either straight or slightly convex. The butt is pointed or rounded, in some cases obliquely blunted with chipping. There is a strong tendency of plano-convex form in cross-section. Some elongated axes and adzes have trapezoidal or rectangular shape with chipping and pecking marks at the butt and in other cases, they are entirely ground and polished. The thick butt ends have a surface either of roughly rectangular or elliptical. In some cases only chipping and pecking found at the sides which is devoid of traces of polishing. Frequency of axes is very low. The cross-sections are trapezoidal and elliptical, showing one surface flatter than the opposite one. The cutting-edges are straight or slightly convex.

The broader variety has two sub-divisions: thinner but rounded butt and thicker with squared or roughly straight butt. Average length and breadth is 5cm. each and thickness 1.8 cm. The thinner and rounded butt adzes have more broad cutting-edge which is straight or slightly convex. There is a tendency of retaining chipping and pecking on the surfaces and at the sides; polishing is largely restricted at the cutting-edge. A few specimens show only grinding. The cross-section is mainly elliptical with a flat under surface.

The thick, short and broad variety shows three forms: quadrangular or rectangular, trapezoidal and sub-triangular. The quadrangular or rectangular one is mostly axe, highly polished and in a few cases bevelling cutting edges shows pecking and grinding at the sides. The cross sections are elliptical, trapezoidal or rectangular. In most cases the trapezoidal form has been confined to the highly polished adzes. The cutting are mostly straight and cross-sections are trapezoid. Another clustering of adzes have subtriangular form with marks of chipping, pecking and grinding at the sides as well as on the surface. In some cases butt-end is squared off and bears marks of grinding and battering. Polished thick butt is also encountered. The cutting-edges are mostly straight and polished. The cross-sections are trapezoid or elliptical.

The tools of Group II have the average length of 7cm. breadth of 4.5 cm. and 1.8 cm. of thickness. They have mostly bevelled surface and cutting edges are prepared by unifacial polishing. The shapes vary between trapezoidal and sub-triangular having rounded or pointed butt with elliptical or lenticular cross-section. They are similar to those found from the Chotonagpur plateau and adjoining region. Only about 15 per cent of the total collection fall in this group. The tools are of two types: axes and adzes. The predominant type is adze.

The tools of Group III are mostly axes and larger in size, above 10cm in length, trapezoidal or long oval in shape, ground and polished with elliptical or long oval cross-section with rounded butt. The thickness is more or less uniform. The shouldered Celts belonging to the Group IV are symmetrical and rectangular in shape and the shoulders are produced by sawing technique. A few chisels which constitute Group V are mainly ground and highly polished

at the cutting-edge. The chisels are smaller in size; if size be the issue, they could be included in Group I.

The axes and adzes having elongated, broad, rectangular with trapezoidal tendency, very regular cross-section and symmetric profile are the distinctive characteristics of the tools belonging to the Group VI. The specimen are polished, cutting-edges are straight or curved. They are bilaterally symmetrical and have uniform thickness along the entire length of the tools. The distinctive feature of the tools belonging to the Group VII is the presence of perforations. This group includes two main types (i) axe and (ii) chisel. The perforations are made near the butt-end. The skill employed in making perforations are considerably highly skillful. They were made in such a manner that the holes are situated symmetrically and medially. The tools were prepared in such a way that a uniform thickness could be maintained all along the entire breadth and length of the tools. The axes are broad, flat and elongated : the length is above 12 cm, The shape is rectangular with slight trapezoidal tendency and bilaterally symmetrical having a thickness of 1.5 cm. with rectangular cross-sections. There are two perforations very symmetrically bored from both the surfaces. The chisel is shorter narrower and slightly thinner than the axes. It is like a rectangular piece with perfect geometrical shape having high polish at the cutting-edge. A few pieces of black, hard cylindrical polished pieces belonging to Group VIII might be used as rubber for polishing the celts.

In fact ground and polished stone industries of the Darjeeling Himalayas typologically comprises: (1) small stone celts, (2) the celts with rounded butt lenticular or elliptical cross-sections and trapezoidal shape, (3) the celts similar to type 2 with pointed butt, (4) quadrangular and (5) rectangular axes and adzes, (6) shouldered celts, and (7) perforated large flat celts.

Prehistoric Antiquities: South West Bengal

The tools collected from South West Bengal mostly come from the valleys of Ajay, Damodar, Kanashabati and Suvarnakha and their tributaries.

Generally, they are found in the high banks and top flat surfaces sufficiently above the flood plain. The average height of the river cliffs ranges from 1015 m. As the tools are hardly found in stratified context it is difficult to establish the date of the Neolithic finds. However, Neolithic celts are found on the surface with microliths and the tools of upper Paleolithic types have been noticed near the same places where surfaces are eroded so much so that gravel is being exposed. Typologically, ground ring-stone pieces and the celts belong to Neolithic traditions of South West Bengal. Along the banks of Tarapheni fifteen ring-stones are found of which one is in tact condition and other one is in a half way to completion as perforation by drilling technique was well carried out from both the surfaces but they could not meet, as a result perforation remains incomplete. The materials of the ring-stones are of sandstone, quartzite and other hard rocks.

Typologically most of the celts are polished and ground, made of metamorphic rock. Only two are made of sedimentary rock. All the tools were used as they bear the mark of utilization. For making these tools the chipping is the basal stage and smoothly ground or polishing the final. In some tools polishing is restricted only around the cutting-edge. Completely

polished tools are few. Functionally, the ground and polished celts can be classified into two types: axe and adze including shouldered adze. The assemblage includes one fabricator. Axe is very predominant constituting more than 66 per cent and then comes adze 34 per cent. So far form is concerned rectangular variety is predominant constituting more than 40 per cent, next is triangular and subtriangular about 20 per cent each and rest is unclassified or incomplete. Rounded butt end variety constitutes 48 per cent, obliquely straight 29 per cent and straight 24 per cent. It has been found that among 59 per cent celts cutting-edge is convex 23 per cent straight and 18 per cent obliquely straight. 58 per cent of the celts have elliptical cross-section, 31 per cent rectangular and 5 per cent planoconvex. Length and breadth of the celts show considerable variations. Minimum length and breadth are 5.4 and 2.9 cm. respectively. So far thickness is concerned, minimum is 1.1 cm. and maximum 3.6 cm. Length-breadth index varies between 37.36 and 97.96, length thickness between 13.18 and 43.07, breadth—thickness between 32.91 and 60.87. Mean values of length, breadth and thickness are 8.5, 4.6 and 2.3 cm respectively. When metrical values of this sample is compared with Sen's collection from Singbhum and Boddington's collection from Santal Pargana, it is found that a strong tendency of homogeneity exists among these assemblages. Besides three shoulder celts found from the same 'microregion' is worth mentioning. They suggest a distinct technological tradition for manufacturing of the tools, i.e. sawing. The technique of sawing was applied in producing sharp angularity of these tools. Typo-technologically these shouldered celts belong to rectilinear variety of shouldered celts of the north Cachar Hills Zone of North East India.

However, celts collected from different parts of Bankura, Bardhaman, Birbhum, Midnapore and Purulia have got rounded butt with convex unifacial cutting-edge and oval to lenticular cross-section. Here the celts occur without any ceramic traits and can be equated with the type I of Allchin's Santal Pargana axes. Sankalia (1968) has categorized this Neolithic finds as pure neolithic culture. The celts found from lateritic plain belong to prehistoric period and their technology can be traced in proto-Neolithic axe and late microlithic industry. It may be repeated again that the celts; occur with ground ring stones and clusters of microlithic tools.

It is difficult to distinguish different horizons for the ground and semi-polished celts and the microlithic tools occur in the clayey soil with patches of reddish brown soil.

Typological features and mode of occurrence of the ground and polished stone celts suggest that they have close relation with similar cultural relics found from the adjoining region, Singbhum and Santal Pargana. It is worth mentioning that all those industries come from such places which belong to same ecological niche.

The Himalayan lithic industries have strong affinities on the one hand with the Chinese Neolithic tradition, Lungshanoid culture and on the other hand with those of North-Eastern India. There are some axes with rounded butt, although rare, can be compared with the Neolithic tradition of the Bengal Bihar region. The presence of pointed butt-end shows strong affinities with South India. The tiny flat and thin triangular polished celts have strong resemblance with the South Chinese Neolithic industries.

Perforated celts along with other perforated knives have been noticed in many places of Chinese Neolithic cultures e.g. Pieyin-yang-ying phase of Lungshanoid culture (Chang 1977: 164-165). The flat large bar celts with bilaterally elongated rectangular one having rectangular cross-section shows strong techno-morphological resemblance with Ch'u-shia-ling culture of Hupei (Chang 1977: 165-167). Similar perforated artifacts have also been noticed from Luang-shan culture of Chekiang (Chang 1977 :180-182). Similar tool types, perforators along with shouldered celts, have also been noticed in the Szechwan, Kweichow and Tibet and also from Yunnan (Chang 1977):203-2040. In this context it seems important to mention that the prehistoric finds reported by Sharma (1981) from Sikkim. His finds mainly comprise harvesters, Neolithic celts including artifacts with single and double perforations from a number of localities in Dangu area in the North Sikkim. Besides, the spatial context of occurrence of tools and the presence of traditional trade routes through Tibet are also very indicative in this connection. Furthermore, the tribes speaking Sino-Tibetan family of language of the region and adjoining places is suggestive one towards this direction. The tool made on jadeite also has strong Chinese affinities. The shouldered celts, quadrangular axes, adzes and chisels show very close affinities with the Neolithic cultures of North-East India. According to Sharma (1974) such tools of North East India bear strong affinities with South East Asian traditions.

As the ground and polished celts occur as surface finds from different places, it is very difficult to place them in proper geo-chronological context. Other means are also lacking for dating them except typo-technological features. On the basis of typo-technological features the celts of Group I and II can be considered earlier than the broad flat elongated rectangular shaped celts of Group VI and VII. In fact, it may be said that chipped and ground ones having traces of polish at the cutting end seems to be earliest one and belong to earlier Neolithic phase. The highly polished flat and thin celts are comparatively later and the large flat rectangular celts with perforated hole, seem to be contemporary to the early metal age.

In respect of dating Sharma has suggested 5000 to 2000 B.C. encompassing different stages of the Neolithic cultures of North East India. By a little modification of his scheme of dating and considering the presence of Lungshanoid Cultural traits, perforation technique and related characteristics, a tentative date may be assigned to the Darjeeling Himalayan assemblages series. A being the earlier one belonging to the Neolithic stage of the middle and later stage of North-East Indian Neolithic and it seems to be not earlier than later half of the third millennium B.C. For Series B, they seem to belong to earlier Christian era. So far Neolithic Celts of South West Bengal are concerned they occur in different contexts and different horizons. On the basis of stratigraphic context, typo-technological features and associated finds the Neolithic collections may be chronologically classified into three broad categories as follows:

1. The Celts of Neolithic with ground and rarely polished at the cutting edge occur in lateritic plain with microliths—proto-Neolithic.
2. Ground and mostly polished celts with lenticular section recovered from Bankura, Burdwan, Birbhum and Purulia belong to pure-neolithic.

3. Celts found from Pandu Rajar Dhibi and some other places belong to proto-historic chalcolithic phase.

Therefore, it appears that the Darjeeling Himalayan ground and polished assemblages show persistence of Chinese and South East Asian Neolithic traditions of different stages and ages. They also show Eastern and South Indian Neolithic characteristics. The most important point with respect to the Darjeeling Himalayan lithic assemblages is that they show in many respects similarities in typo-technological and morphological features with that of North East Indian one.

The discussion made above suggests that a comprehensive study on the ground and polished stone industries found from different places of the Chhotanagpur plateau and panplain region should be attempted immediately so that a better understanding could be made on the nature and pattern of those stone celts. The position of the ground and polished stone celts of this region, Eastern India, in South Asian context could also be ascertained from that study.

PREHISTORIC METAL AND CHALCOLITHIC CULTURE

Prehistoric metal object, a shouldered Celt of copper was discovered by Anderson in 1883 and was referred by Smith (1905) in quest of writing on prehistoric metal implements. Explorations conducted by P. C. Das Gupta, the Director of the State Archaeological Department discovered some very important prehistoric metal sites of which the most important are Pandu Rajar Dhibi, Mahisadal and Nanur of Birbhum district and Bharatpur of Bardhaman district. This cultural stage is known as Chalcolithic and belongs to protohistoric period. This stage is represented by a typical type of pottery known as Black and Red Ware. This Black and Red Ware is generally regarded as the type-ware of the Chalcolithic of Eastern India including West Bengal. The four stratified sites mentioned above, Pandu Rajar Dhibi, Bharatpur, Mahisadal and Nanur have been excavated. Therefore, a stratigraphic evidence is available which shows the gradual advancement of a primitive farming community towards the threshold of the historic era and finally to urbanization and civilization.

The chalcolithic sites are mostly situated in the basins of Kunur, Ajoy, Bakreshwar and Mayurakhi within the latitude between 23°30' and 23°5'N and longitude between 85°25' E and 88°0' E. Geographically this region is located in western part of West Bengal panplain, old deltaic plain in the central Bengal and moribund delta in the east. To speak precisely, this region is gradually slopping down from the hills to the plain through the intermediate region of plain of upland. The soil is red in the upland and brown in the lowland with sporadic patches of laterite. The central part is formed of lateritic soil and the eastern part is red loam. In fact, this part is not so differentiated but more or less have similar geographical characteristics including rainfall and temperature. Therefore, this region of protohistoric sites largely belong to the same ecological zone.

Of the four proto-historic sites, Rajar Dhibi is the most important one. It has four cultural periods. The period I is premetallic and the toolkit is largely confined to a bone point, very few stone tools, ill-fired coarse hand made grey or red wares with husk impression, and a

few microliths. The other traits include floors of pally laterite and two fractional burials which is associated with some potsherds. Though chronology of this phase can not be ascertained with reliable dating, the date is beyond 1000 B. C. In this connection it is worth mentioning that Bharatpur sites period I is characterised by red ware, plain and painted, black and red ware Neolithic Celts and microliths. The use of copper is rare. Three available dating for Bharatpur I ranges between 1770 and 1410 B. C. Therefore, earliest phase of Rajar Dhibi seems to be as old as 1800 B. C. Next cultural phase of Rajar Dhibi is characterise by an extensive use of copper objects of as well as ceramics. The date for this phase is 1012 – 112 BC.

The cultural assemblages of Period -II or late middle Chalcolithic phase is metallic and more elaborate. Five main pottery types are 1) Black and Red ware, both plain and painted; bowl with carbonated shoulders, channel-spouted bowls, tulip-shaped vases, perforated bottom vases and deep bowls. 2) Bright-red ware, bowl - on - stand painted in black bands. 3) Lustrous red ware or red burnished ware painted in black 4) Chocolate or bullish ware painted in creamish white and 5) Black burnished ware with pedestal cup, high-necked jar with a flaring rim and funnel shaped narrow mouth. The stone tools are microlithic blades, blades with crested ridges, scrapers and flakes. The bone objects are awls, points, pins, harpoons and arrowheads. The copper objects include ring, nail-pare, antimony rod, heavy spiral bangles, ordinary bangles, tubular heads. Besides, there are stone beads, a terracotta seal, a stone disc traces of textile. Director of the excavation, Dasgupta (1964) has referred to the architectural evidence of a pier-like construction paved with nodules washed with lime, a ramp, post holes and ovens, Mukherjee (1966) reported round or rectangular to square houses with wooden or bamboo posts covered with mud plastered reed-matting and floors-rammed earth, lateritic pellets, terracotta nodules and clay mixed with cow-dung and lime. There are twelve burials of three different types extended, fractional and urn-burials. There is a red vase with a tooth inside. The urns used are hemispherical bowls. The grave goods include beads of semi-precious stone and copper pots.

Early Iron Age of Rajar Dhibi reveals that the use of iron was extensive and the tool types included not only arrowheads and spearheads but also chisels, nails, a knife, a sword and a few indeterminate objects. The evidences suggest that the people knew and practised metallurgy of iron effectively. There is evidence of abundance of iron ore and slags. During this stage early pottery traditions were continued. However, it appears that there are preponderance of plain and painted black slipped ware. The shape of this ware are dish-onstand, bowl and dishes, painted mostly geometrically except one which was incised in naturalistic design. Besides, bottle-shaped flasks with a bulbous body and 'ink pots' in red ware have also been found. The spouted bowls become bigger and the spouted structure become more splayed out at the edge. Another type — perforated ware has also been found. The other objects include microlithic blades, polished stone axes, copper trinklets, bangles, rings, arrowheads, beads of agate, chalcedony, jasper, terracotta female figurines, terracotta male heads with head dress and terracotta, double axe. Archaeological evidence retrieved from the

excavation reveals that the copper and iron stages seem essentially to be the same and continuous without change . The initial phase of Early Iron Age of Rajar Dhibi is not later than 400 B.C. However the chalcolithic phase(Rajar Dhibi VI) is continued until 650A.D. (Poshell: 1988)

Bharatpur is another important chalcolithic site. Archaeological finds are represented by black and red ware, plain and painted, buff on red ware, copper used scarcely, objects of bone and antler, neolithic Celts and microliths .Date of this chalcolithic culture of Bharatpur ranges between 1770 and 1410 B.C.(Poshell: 1998)

The chalcolithic culture of Mahisadal is divided into two stages : early chalcolithic and late chalcolithic. The early chalcolithic is characterized by black and red ware, plain and painted in white, black on red ware, plain red ware and gritty ware. Other archaeological finds include a copper celt, bone points, microlithic tools like scrapers, points, blades and flakes. Besides, there are evidences of a large quantity of charred rice. Poshell (1988) suggests the date for early chalcolithic as 1690-1405 B.C. In late chalcolithic stage some ceramic traditions were continued. Poshell suggests date for the late chalcolithic phase as 920-795 B.C.

Mahisadal chalcolithic people lived in wattle-and-daub construction and rammed earth floors with terracotta nodule soling. The common shapes of pottery are lipped or channel-spouted bowls, carinated bowls with splayed out rim and convex sided bowls with saggar base. Other objects include terracottas, phallus, tetrahedral objects seemed to be weight fragment of a decorated comb, bangles, heads of semi-precious stone and steatite. Early Iron Age at Mahisadal is as old as 820-590 B.C (Poshell-1988). Iron objects are arrowheads, spearheads, chisels, nails etc. Besides, large quantities of iron and slags also occurred. Broken terracotta elephants, buff and gray wares pottery tradition of chalcolithic phase continued.

The chalcolithic culture of West Bengal are mainly distributed in the Rarh Bengal between 100m and 50m contours and also little below 50m contours along Ajay—Damodar valleys . This culture has close affinities with Sonpur

Table-26 Some important Chalcolithic sites of West Bengal

Chalcolithic site	Date	Stage
Bahiri	1120-795 B.C. & 810-110 B.C.	Chalcolithic
Bharatpur	1770-1410 B.C. & 1545-1110 B.C.	Chalcolithic
Mahisadal	1690—1405 B.C. & 1370 — 1035 B.C.	Early Chalcolithic
Mahisadal	920—795 B.C.	Late Chalcolithic
Mahisadal	820-595 B.C.	Early Iron Age
Rajardhibi	1800-1000 B.C.	Early Chalcolithic

and Chirand chalcolithic culture complex of Bihar .The common elements are plain and white-painted black-and-red ware, microliths, the cultivation of rice and general persistence of older forms even when iron objects come to be in use. Besides , a similarity in shape between

a type of black-and-red vessel of Ahar and Rajar Dhibi has been noted by Sankalia (1964). Black-and-red ware settlements of Eastern India have been considered the spread of Aryan speaking people by Kosambi (1965). In this context it deserves to be mentioned that many cultural elements, say for example the ritual use of phallus is non-Aryan. Ray (1949) suggested that Rarh Bengal or Vajjabhum which covers the distribution of the black-and-red ware sites in West Bengal was peopled by the Austro-Asiatic speakers. However, it is an important issue to relate the late chalcolithic culture to the mainstream of Bengal's culture. In fact historical period begins in Bengal in or around third century B.C. in Ganga delta. It is thus preceded by the growth of chalcolithic culture of Ajay—Damodar valleys. There is every possibility that chalcolithic culture moves downward and at one stage to the alluvial zone and provided the background of the subsequent growth of historic communities in this area. In conclusion it can be said that the chalcolithic culture started as early as 2000 B.C. and early iron age people lived in upland Bengal more than 2500 years before the present day.

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